

AD _____

Award Number: DAMD17-00-2-0003

TITLE: Drug Development and Conservation of Biodiversity in West
and Central Africa/In Vitro Antiviral Screening of Plant
Extracts and Isolates

PRINCIPAL INVESTIGATOR: James A. Turpin

CONTRACTING ORGANIZATION: Southern Research Institute
Birmingham, Alabama 35205

REPORT DATE: November 2000

TYPE OF REPORT: Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for public release;
Distribution unlimited

The views, opinions and/or findings contained in this report are
those of the author(s) and should not be construed as an official
Department of the Army position, policy or decision unless so
designated by other documentation.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE November 2000	3. REPORT TYPE AND DATES COVERED Final (1 Dec 99 - 30 Nov 00)	
4. TITLE AND SUBTITLE Drug Development and Conservation of Biodiversity in West and Central Africa/In Vitro Antiviral Screening of Plant Extracts and Isolates			5. FUNDING NUMBERS DAMD17-00-2-0003	
6. AUTHOR(S) James A. Turpin				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Southern Research Institute Birmingham, Alabama 35205 E-MAIL:			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; Distribution unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 Words)				
14. SUBJECT TERMS			15. NUMBER OF PAGES	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18
298-102

INTRODUCTION

This report outlines the antiviral evaluations for thirty-five (35) ICBG plant extracts For Walter Reed Army Institute of Research by Southern Research Institute.

T

MATERIAL AND METHODS

Test Material

The thirty-five (35) plant extracts were received in vials containing 20 mg of dried powder. The extracts were solubilized in DMSO at 40 mg/mL and stored at -20°C until assay. No abnormal occurrences were noted upon solvation.

CEM-SS HIV-1_{RF} Cytoprotection Assay:

CEM-SS cells (obtained from the AIDS Research and Reference Reagent Repository, Bethesda, MD) are passaged in T-75 flasks in tissue culture media (RPMI 1640 medium (no phenol red) with 10% Fetal Bovine Serum (heat inactivated), 2 mM L-glutamine, 100 U/mL penicillin, 100 $\mu\text{g/mL}$ streptomycin, and 10 $\mu\text{g/mL}$ gentamycin). On the day preceding the assay, the cells are split 1:2 to assure they are in an exponential growth phase at time of infection. On the day of assay the cells are collected by centrifugation, washed twice with tissue culture medium and resuspended at 5×10^4 cells per mL and resuspended in fresh tissue culture medium. Total cell and viability counting is performed using a hemacytometer. Cell viability prior to the assay is determined by Trypan Blue dye exclusion and must exceed 95%. A pretitered aliquot of HIV-1_{RF} (AIDS Research and Reference Reagent Repository, Bethesda, MD), 5×10^3 cells and compound where appropriate are placed into 0.2 cm round bottom microtiter plates (final volume 200 μL). Each plate contains cell control wells (cells only), virus control wells (cells plus virus), drug toxicity control wells (cells plus drug only), drug colorimetric control wells (drug only) as well as experimental wells (drug plus cells plus virus) (**Figure 1**). Cultures are incubated for 6 days at 37°C , 5% CO_2 and antiviral activity and compound toxicity determined by MTS staining. Activity is confirmed by both macroscopic and microscopic analysis of the assay. Please note this assay was originally identified as the XTT

cytoprotection assay. The assays are identical except for the use of the MTS reagent in place of XTT for detection of cell viability.

Figure 1: Plate Layout for the HIV Cytoprotection Assay

	1	2	3	4	5	6	7	8	9	10	11	12
A	Media	Media	Media	Media	Media	Media	Blank	Blank	Blank	Blank	Blank	Blank
B	Cells + Drug 1 0.32 μ M	Cell Control	Cells + Virus + Drug 1 0.32 μ M			Cells + Drug 1 0.32 μ M	Cells + Drug 2 0.32 μ M	Cells + Virus + Drug 2 0.32 μ M			Cell Control	Cells + Drug 2 0.32 μ M
C	Cells + Drug 1 1 μ M	Cell Control	Cells + Virus + Drug 1 1 μ M			Cells + Drug 1 1 μ M	Cells + Drug 2 1 μ M	Cells + Virus + Drug 2 1 μ M			Cell Control	Cells + Drug 2 1 μ M
D	Cells + Drug 1 3.2 μ M	Cell Control	Cells + Virus + Drug 1 3.2 μ M			Cells + Drug 1 3.2 μ M	Cells + Drug 2 3.2 μ M	Cells + Virus + Drug 2 3.2 μ M			Cell Control	Cells + Drug 2 3.2 μ M
E	Cells + Drug 1 10 μ M	Virus Control	Cells + Virus + Drug 1 10 μ M			Cells + Drug 1 10 μ M	Cells + Drug 2 10 μ M	Cells + Virus + Drug 2 10 μ M			Virus Control	Cells + Drug 2 10 μ M
F	Cells + Drug 1 32 μ M	Virus Control	Cells + Virus + Drug 1 32 μ M			Cells + Drug 1 32 μ M	Cells + Drug 2 32 μ M	Cells + Virus + Drug 2 32 μ M			Virus Control	Cells + Drug 2 32 μ M
G	Cells + Drug 1 100 μ M	Virus Control	Cells + Virus + Drug 1 100 μ M			Cells + Drug 1 100 μ M	Cells + Drug 2 100 μ M	Cells + Virus + Drug 2 100 μ M			Virus Control	Cells + Drug 2 100 μ M
H	Drug 1 100 μ M + Media	Drug 1 32 μ M + Media	Drug 1 10 μ M + Media	Drug 1 3.2 μ M + Media	Drug 1 1 μ M + Media	Drug 1 0.32 μ M + Media	Drug 2 100 μ M + Media	Drug 2 32 μ M + Media	Drug 2 10 μ M + Media	Drug 2 3.2 μ M + Media	Drug 2 1 μ M + Media	Drug 2 0.32 μ M + Media

MTS staining for cell viability:

At assay termination the assay plates were stained with the soluble tetrazolium-based dye MTS (CellTiter Reagent Promega) to determined cell viability and quantify compound toxicity. MTS is metabolized by the mitochondria enzymes of metabolically active cells to a soluble formazan product, allowing the rapid quantitative analysis cell viability and compound cytotoxicity. This reagent is a single stable solution that does not require preparation before use. At termination of the assay 20 μ L of MTS reagent is added per well. The wells are incubated overnight for the HIV cytoprotection assay at 37°C. Adhesive plate sealers were used in place of the lids, the sealed plate was inverted several times to mix the soluble formazan product and the plate was read spectrophotometrically at 490 nm with a Molecular Devices Vmax plate reader.

Data Analysis:

Using an in-house computer program, IC₅₀ (50%, inhibition of virus replication), TC₅₀ (50% reduction in cell viability) and a therapeutic index (TI, TC₅₀/IC₅₀) are provided. Raw data

for both antiviral activity and toxicity with a graphic representation of the data are provided in a printout summarizing the individual compound activity. We have provided AZT as a relevant positive control compounds for the individual assays.

RESULTS

The results of the antiviral evaluations for the compounds are summarized in **Table 1**. The raw data for each compound is included in **Appendix I** as a single page plate report. Antiviral data in the appendices for each test includes the relevant raw data values from the triplicate tests for virus replication and cell viability (OD 490) using MTS dye reduction. The IC_{50} and TC_{50} values are calculated by linear regression using a program developed specifically for this purpose at Southern Research Institute. The IC_{50} represents the compound concentration which suppresses virus replication by 50%, and the TC_{50} represents the compound concentration which results in 50% cytotoxicity. The TI represents the ratio of the TC_{50}/IC_{50} , and is used to determine relative potency between compounds. Compounds with a TI less than 2 are graded as inactive, $2 < TI < 5$ are moderately active and $TI > 5$ are active. The graphical representation shows the relationship between antiviral efficacy (%VC) and compound toxicity (%CC) expressed as a percent of the control, virus no compound or cells no compound, respectively.

It is important to note that initial antiviral evaluations of crude plant extracts rarely identify compounds with significant antiviral activity, since the antiviral moiety is usually a minor component of the total extract. In this case it is often helpful to use the IC_{25} (concentration inhibiting virus replication by 25%) to aid in identifying extracts with potentially active components. The relationship between the %VC and %CC curves can be further used to define extracts of interest.

The assays performed meet our internal validation and standardization criteria. For successful antiviral assays AZT must demonstrate an IC_{50} between 1 and 10 nM without toxicity at the high test concentration of 4 μ M. The assays used to evaluate the plant extracts meet the individual assay standards and other internal assay validation criteria including intra-triplicate

variation and total virus replication. Thus, we consider the presented evaluations to be valid and representative of the antiviral activity of the tested extracts.

Table 1 summarizes the results of the testing of the 35 ICBG plant extracts in the HIV cytoprotection assay, and **Table 2** summarizes compounds which reached and IC_{25} . Only compounds 1948 and 1961 demonstrated a TI greater than 2.0. Closer examination of the antiviral efficacy in both cases shows that antiviral activity is limited by compound toxicity, with complete protection prevented by increasing compound toxicity. Re-examination of the data using IC_{25} values to identify plant extracts with potential antiviral activity yielded 6 more extracts which inhibited HIV replication sufficiently to produce an IC_{25} (**Table 2**). Of the 6 extracts all extracts except 1960 have their antiviral activity limited by compound cytotoxicity. Although extract 1960 is non-toxic at 200 $\mu\text{g/mL}$ the abnormal shape of its antiviral efficacy curve raises doubts as to whether the observed protection is inhibition of virus replication or a cell-based effect and/or artifact. Extracts 1921 and 1959 are considered, based on the positioning of their antiviral efficacy and toxicity curves, to be the best lead compounds of the IC_{25} group. Of the 35 extracts tested only extracts 1904, 1924, 1958, 1960 and 1965 were non-toxic to CEM-SS cells at the high test concentration of 200 $\mu\text{g/mL}$.

DISCUSSION

We have analyzed thirty-five (35) ICBG plant extracts for anti-HIV activity in the HIV cytoprotection assay. This assay measures the ability of compounds to prevent the replication of the highly cytopathic Rf strain of HIV in the T-lymphoblastic cell line CEM-SS. Antiviral activity is evidenced by increased growth and viability of the cells following inhibition of virus replication. Two of the extracts (1948 and 1961) tested displayed antiviral activity which approached the level of marginal activity ($2 < TI < 5$) while 6 more of the extracts reached an IC_{25} . Further analysis of the extracts with IC_{25} s identified extracts 1921 and 1959 as the best lead extracts based upon the positioning of the antiviral efficacy and extract toxicity curves.

In general the extracts tested were cytotoxic to CEM-SS cells with extracts 1930 and 1914 being the most potent with TC_{50} s in the 1 $\mu\text{g/mL}$ range. Only 4 of the 35 extracts lacked any effect on

CEM-SS cell growth. Examination of the antiviral activity displayed by the four highlighted extracts (1948, 1961, 1921 and 1959) shows that for all four extracts cytotoxicity and antiviral activity were expressed in parallel. Thus these extracts will require further fractionation and/or purification to determine if antiviral activity is independent of cytotoxic constituents in the extracts.

TABLE 1 SUMMARY OF HIV CYTOPROTECTION RESULTS

Compound	IC₅₀ (μg/ml)	TC₅₀ (μg/ml)	Therapeutic Index
AZT (μ M)	0.004	>1.0	>250.0
1904	>200	200.0	---
1909	>200	0.02	---
1910	>200	121.0	---
1911	>200	4.7	---
1912	>200	77.2	---
1914	>200	1.3	---
1915	>200	12.8	---
1916	>200	37.5	---
1917	>200	38.7	---
1918	>200	124.0	---
1919	>200	39.4	---
1920	>200	25.2	---
1921	>200	42.2	---
1923	>200	11.6	---
1924	>200	>200	---
1925	>200	42.4	---
1927	>200	52.7	---
1929	>200	0.003	---
1930	>200	1.6	---
1932	>200	101.0	---
1933	>200	169.0	---
1936	>200	60.9	---
1946	>200	131.0	---
1948	14.2	38.6	2.7
1953	>200	38.4	---
1956	>200	123.0	---
1957	>200	3.2	---
1958	>200	>200	---
1959	>200	44.4	---
1960	>200	>200	---
1961	17.6	45.3	2.6
1962	>200	41.5	---

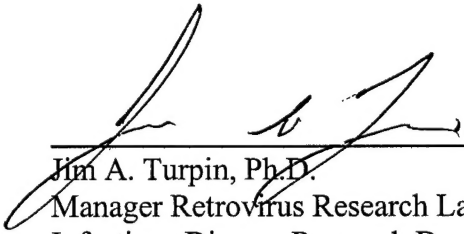
Compound	IC ₅₀ (µg/ml)	TC ₅₀ (µg/ml)	Therapeutic Index
1963	>200	21.4	---
1964	>200	4.5	---
1965	>200	>200	---

TABLE 2: SUMMARY OF COMPOUNDS BASED ON IC₂₅ VALUES

Compound	IC ₂₅ (µg/ml)	TC ₂₅ (µg/ml)	Therapeutic Index
AZT (µM)	0.002	>1.0	>599.4
1921	17.7	25.9	1.5
1930	3.4	<0.63	<0.19
1932	53.4	52.6	0.98
1948	9.4	26.7	2.8
1959	5.0	1.9	0.38
1960	1.3	>200	>153.8
1961	10.3	32.6	3.2
1963	15.4	4.9	0.32

October 6, 2000

Submitted By:



Jim A. Turpin, Ph.D.
Manager Retrovirus Research Laboratory
Infectious Disease Research Department

REPORT SRF-00-9935- DAMD17-00-2-003

APPENDIX I

HIV Cytoprotection Assay Results

PLATE RFP
DRUG AZT

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- AZT
SI: >450.57

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.438	0.411	0.444	0.447	0.438	0.468	0.057	0.058	0.058	0.061	0.063	0.063
B	tox	cc/vc	experimental - high concentrations				tox	experimental - low concentrations				tox
C	1.598	1.650	1.002	1.133	1.780	1.799	1.939	1.031	0.788	0.729	1.585	1.944
D	1.723	1.718	1.428	1.585	1.768	1.588	1.722	1.031	0.788	0.729	1.612	1.828
E	1.422	1.576	1.467	1.504	1.564	1.661	1.694	0.727	0.683	0.765	1.607	1.486
F	1.657	0.728	1.844	1.740	1.706	1.676	1.741	0.736	0.722	1.331	0.759	1.577
G	1.658	0.756	1.801	1.855	1.875	1.793	1.738	0.795	0.807	0.926	0.737	1.652
H	1.568	0.631	1.799	1.689	1.752	1.648	1.571	0.779	0.726	0.970	0.642	1.635
colorimetric background - high concentrations						colorimetric background - low concentrations						
	0.480	0.448	0.466	0.436	0.420	0.442	0.438	0.412	0.431	0.436	0.447	0.447

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
CELLS
SHIPMENT NUMBER
STRN

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR 12S
RF

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

REAGENT 0.441
VIRUS CONTROL 0.268
CELL CONTROL 1.184
DIFFERENTIAL 0.916

DRUG AZT	25%	50%	95%
TC (nM)	> 1.0000000	> 1.0000000	> 1.0000000
IC (nM)	0.0012100	0.0022200	0.0087500
ANTIVIRAL INDEX (AI)	> 829.1345220	> 450.5734920	> 114.3451240

	DRUG AZT		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC - CONTROL
	ROW ON PLATE	CONC. (nM)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
BASED ON VALUES OF COLUMNS 7 through 12 (RIGHT SIDE OF PLATE)	low B	0.00281	0.135	15%	1.495	100%	0.006
	C	0.009	0.135	15%	1.328	100%	0.006
	D	0.028	0.021	2%	1.154	97%	-.005
	E	0.09	0.231	25%	1.228	100%	-.010
	F	0.281	0.163	18%	1.283	100%	-.029
	G	0.9	0.119	13%	1.165	98%	-.003
BASED ON VALUES OF COLUMNS 1 through 6 (LEFT SIDE OF PLATE)	high B	3.2	0.595	65%	1.257	100%	0.001
	C	10	0.906	99%	1.236	100%	-.021
	D	32	0.808	88%	1.106	93%	-.005
	E	100	1.030	100%	1.201	100%	0.025
	F	320	1.128	100%	1.278	100%	0.007
	G	1000	0.999	100%	1.128	95%	0.039

SUMMARY GRAPH
--- AZT vs. HIV1 (08/01/00)

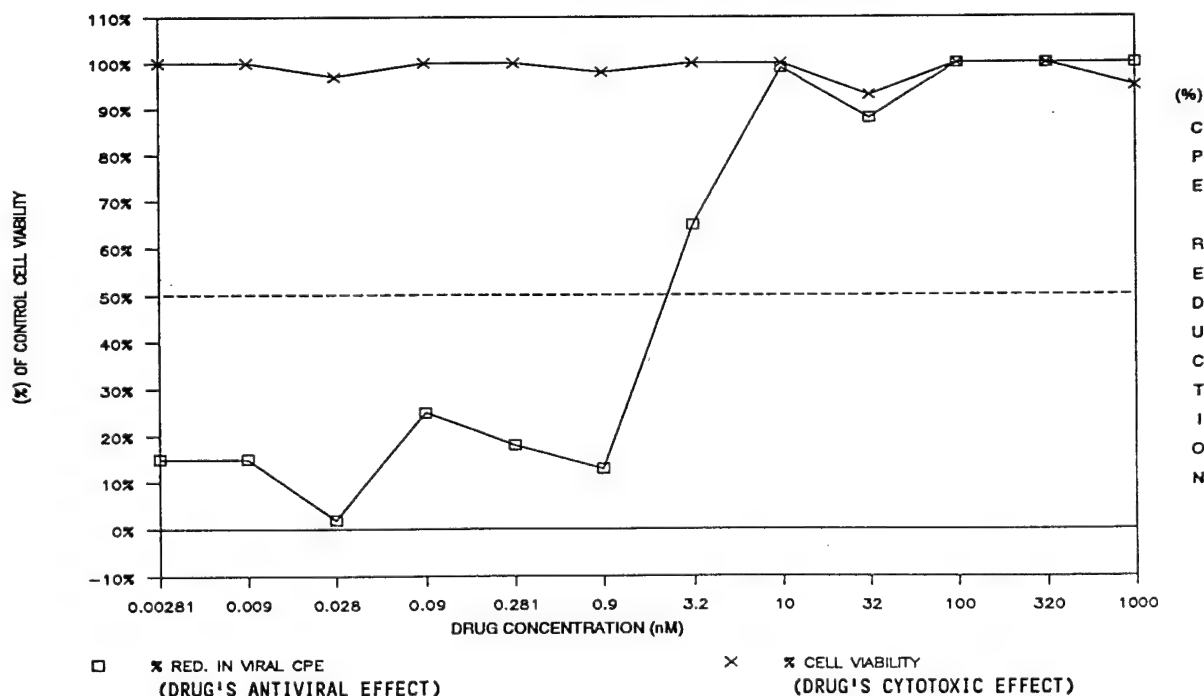


PLATE RFQ
 DRUG 1904

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1904
 TAI: >7.44 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background					plastic background						
	0.412	0.407	0.427	0.426	0.418	0.451	0.054	0.058	0.056	0.059	0.061	0.063
B	tox	cc/vc	drug 1904 experimental				tox					cc/vc
C	1.615	1.646	1.395	0.735	0.810	1.661					1.542	
D	1.489	1.851	0.830	0.897	0.666	1.796					1.717	
E	1.733	1.839	0.769	0.663	0.792	1.822					1.665	
F	1.740	0.744	0.924	0.641	0.656	1.759					0.739	
G	1.453	0.730	0.465	0.722	0.460	1.496					0.720	
H	0.805	0.721	1.101	0.604	0.435	1.142					0.701	
colorimetric background												
H	0.335	0.349	0.360	0.367	0.378	0.372						

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN

HIV1
 CEMSS
 --
 RF

PASSAGE --
 PASSAGE --
 OPERATOR KMW

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

REAGENT 0.424
 VIRUS CONTROL 0.302
 CELL CONTROL 1.287
 DIFFERENTIAL 0.984

DRUG 1904	25%	50%	95%
TC (uG/mL)	110.00	200.00	> 200.00
IC (uG/mL)	< 0.63	-----	-----
ANTIVIRAL INDEX (AI)	> 175.26	-----	-----

DRUG 1904		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.305	31%	1.266	98%	-.051
C	2	0.117	12%	1.264	98%	-.045
D	6.25	0.072	7%	1.410	100%	-.056
E	20	0.079	8%	1.390	100%	-.064
F	62.5	-.102	0%	1.126	88%	-.075
high G	200	0.076	8%	0.638	50%	-.088

SUMMARY GRAPH

--- 1904 vs. HIV1 (08/01/00)

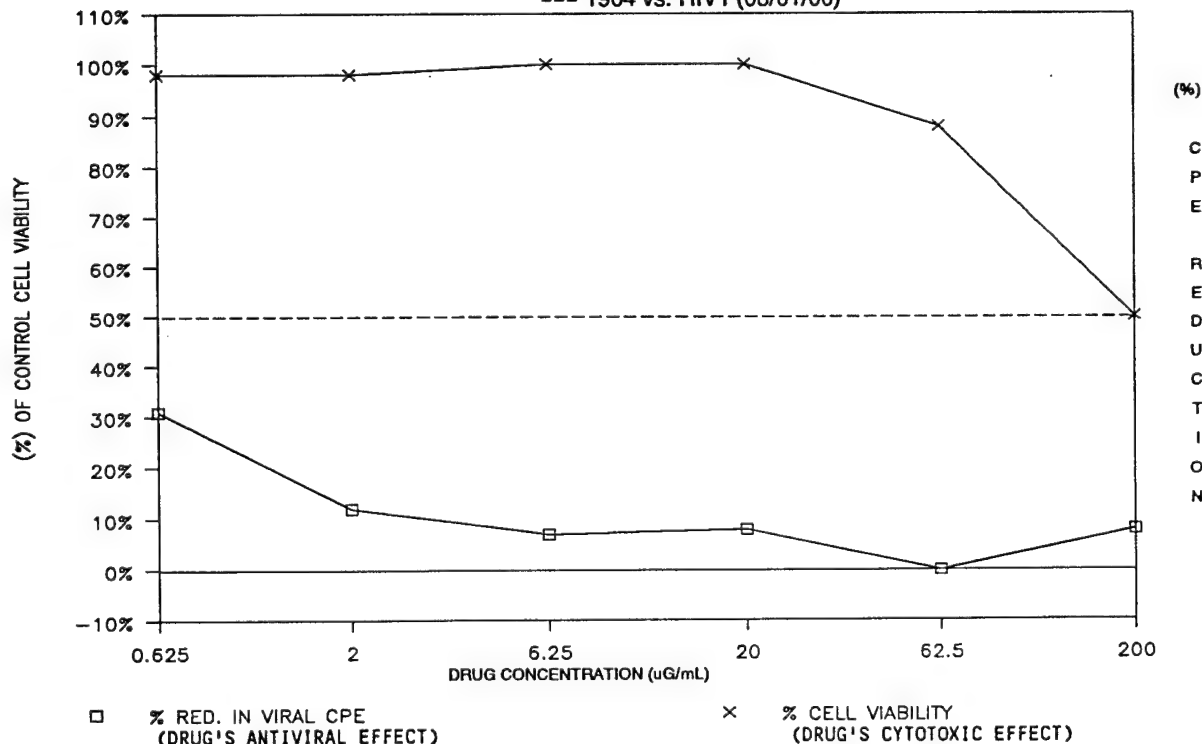


PLATE RFQ
 DRUG 1909

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1909
 TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12	
A	reagent background						plastic background						
	0.412	0.407	0.427	0.426	0.418	0.451	0.054	0.058	0.056	0.059	0.061	0.063	
B		cc/vc					tox	drug 1909 experimental				cc/vc	tox
C		1.646					0.398	0.399	0.402	0.430	1.542	0.437	
D		1.851					0.440	0.420	0.436	0.439	1.717	0.418	
E		1.839					0.520	0.503	0.517	0.504	1.665	0.544	
F		0.744					0.656	0.652	0.660	0.641	0.739	0.693	
G		0.730					0.905	0.888	0.914	0.842	0.720	0.916	
		0.721					1.144	1.178	1.184	1.110	0.701	1.191	
H							colorimetric background						
							1.097	0.877	0.629	0.494	0.422	0.447	
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities													

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1 PASSAGE --
 CEMSS PASSAGE --
 -- OPERATOR KMW
 RF
 0.424
 0.302
 1.287
 0.984

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

DRUG 1909	25%	50%	95%
TC (uG/mL)	< 0.63	< 0.63	200.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1909		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	COLORIMETRIC CONTROL
low B	0.625	-.340	0%	-.030	0%	0.024
C	2	-.292	0%	0.008	1%	-.002
D	6.2	-.289	0%	0.038	3%	0.071
E	20	-.281	0%	0.045	3%	0.206
F	62.5	-.299	0%	0.033	3%	0.454
high G	200	-.243	0%	0.070	5%	0.674

SUMMARY GRAPH

--- 1909 vs. HIV1 (08/01/00)

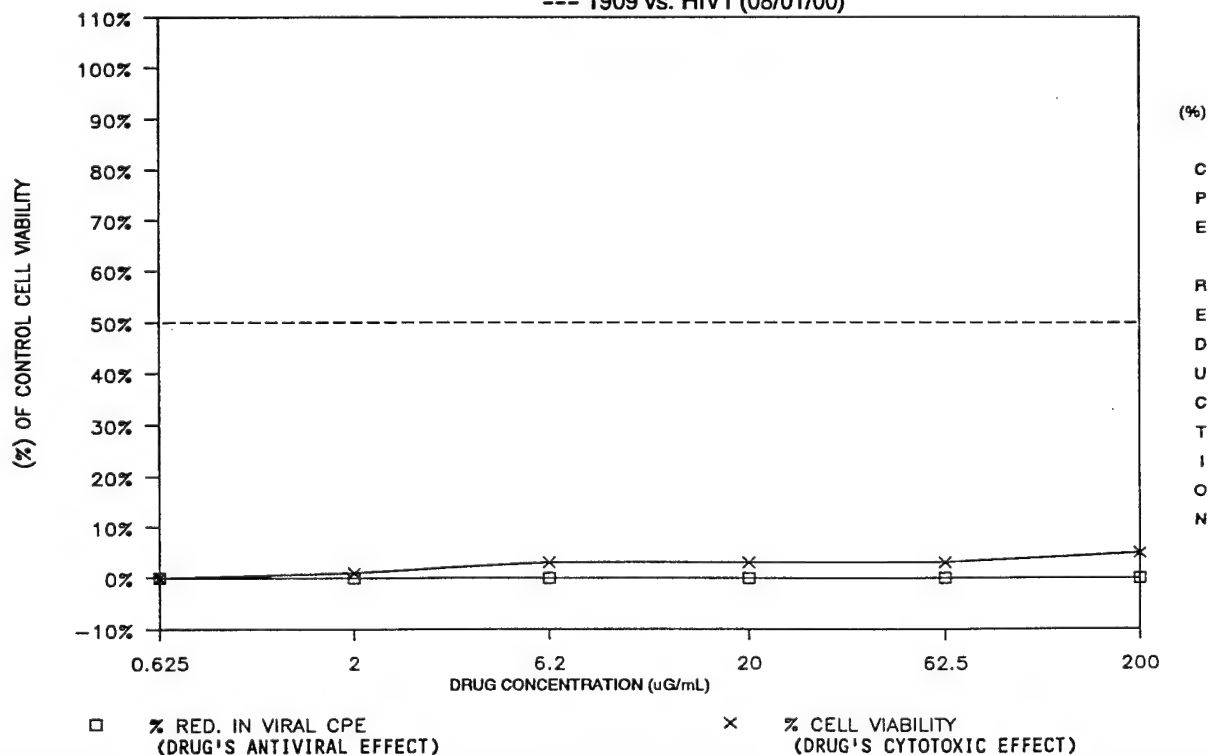


PLATE RFR
DRUG 1910

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1910
TAI: >0.75 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
	reagent background						plastic background					
A	0.431	0.419	0.411	0.433	0.419	0.429	0.046	0.051	0.048	0.052	0.053	0.053
B	tox	cc/vc	drug 1910 experimental				tox					cc/vc
C	1.714	1.775	0.788	0.852	0.960	1.761						1.733
D	1.970	1.824	0.838	0.849	0.780	1.908						1.950
E	1.788	1.749	0.740	0.746	0.731	1.634						1.740
F	1.968	0.788	0.768	0.822	0.757	2.070						0.825
G	1.803	0.770	1.133	1.232	1.082	1.918						0.774
H	1.093	0.880	1.061	1.075	1.037	1.007						0.714
	colorimetric background											
H	1.043	0.677	0.504	0.455	0.431	0.414						
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities												

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1
CEMSS
--
RF
0.424
0.368
1.372
1.003

PASSAGE --
PASSAGE --
OPERATOR KMW
PROJECT #
SPONSOR
WALTER REED
TEST DATE
08/01/00
DATE READ
08/01/00

DRUG 1910	25%	50%	95%
TC (uG/mL)	80.30	121.00	194.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1910		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.085	8%	1.324	97%	-0.010
C	2	0.023	2%	1.508	100%	0.007
D	6.25	-0.084	0%	1.256	92%	0.031
E	20	-0.090	0%	1.515	100%	0.080
F	62.5	0.104	10%	1.184	86%	0.253
high G	200	-0.353	0%	0.007	1%	0.619

SUMMARY GRAPH

--- 1910 vs. HIV1 (08/01/00)

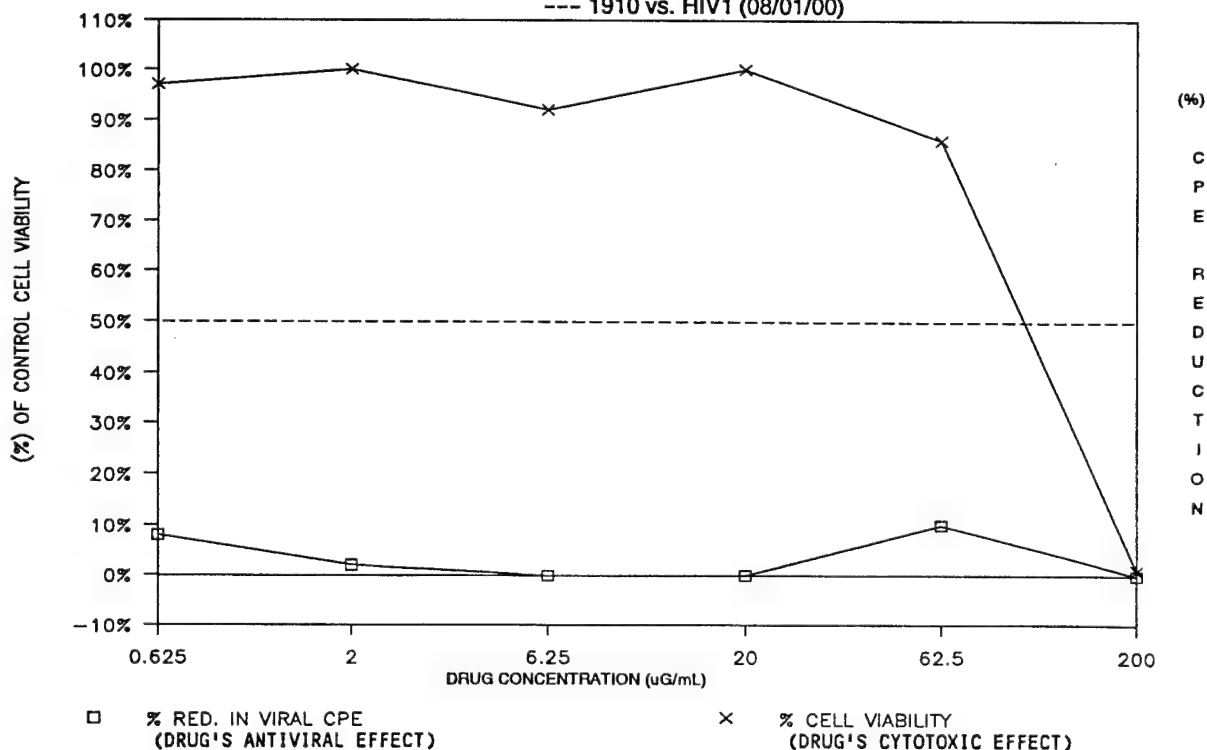


PLATE RFR
DRUG 1911

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1911
TAI: 1.11 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
	reagent background						plastic background					
A	0.431	0.419	0.411	0.433	0.419	0.429	0.046	0.051	0.048	0.052	0.053	0.053
B		cc/vc					tox	drug 1911 experimental			cc/vc	tox
C		1.775					1.730	0.744	0.758	0.822	1.733	1.643
D		1.824					1.969	0.907	1.098	0.937	1.950	1.990
E		1.749					0.690	0.590	0.583	0.628	1.740	0.951
F		0.788					0.673	0.649	0.611	0.648	0.825	0.663
G		0.770					1.051	1.009	0.955	0.954	0.774	0.962
H		0.880					1.371	1.335	1.333	1.321	0.714	1.147
							colorimetric background					
							1.347	0.966	0.582	0.535	0.464	0.462

tox=cell toxicity cc=cell control vc=virus control

BOLD = highest drug conc

values shown are optical densities

VIRUS
CELLS
SHIPMENT NUMBER
STRN

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

REAGENT 0.424
VIRUS CONTROL 0.368
CELL CONTROL 1.372
DIFFERENTIAL 1.003

DRUG 1911	25%	50%	95%
TC (uG/mL)	3.34	4.69	34.20
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1911		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	COLORIMETRIC CONTROL
low B	0.625	-.055	0%	1.225	89%	0.038
C	2	0.149	15%	1.516	100%	0.040
D	6.2	-.303	0%	0.286	21%	0.111
E	20	-.314	0%	0.086	6%	0.158
F	62.5	-.361	0%	0.041	3%	0.542
high G	200	-.385	0%	-.088	0%	0.923

SUMMARY GRAPH

--- 1911 vs. HIV1 (08/01/00)

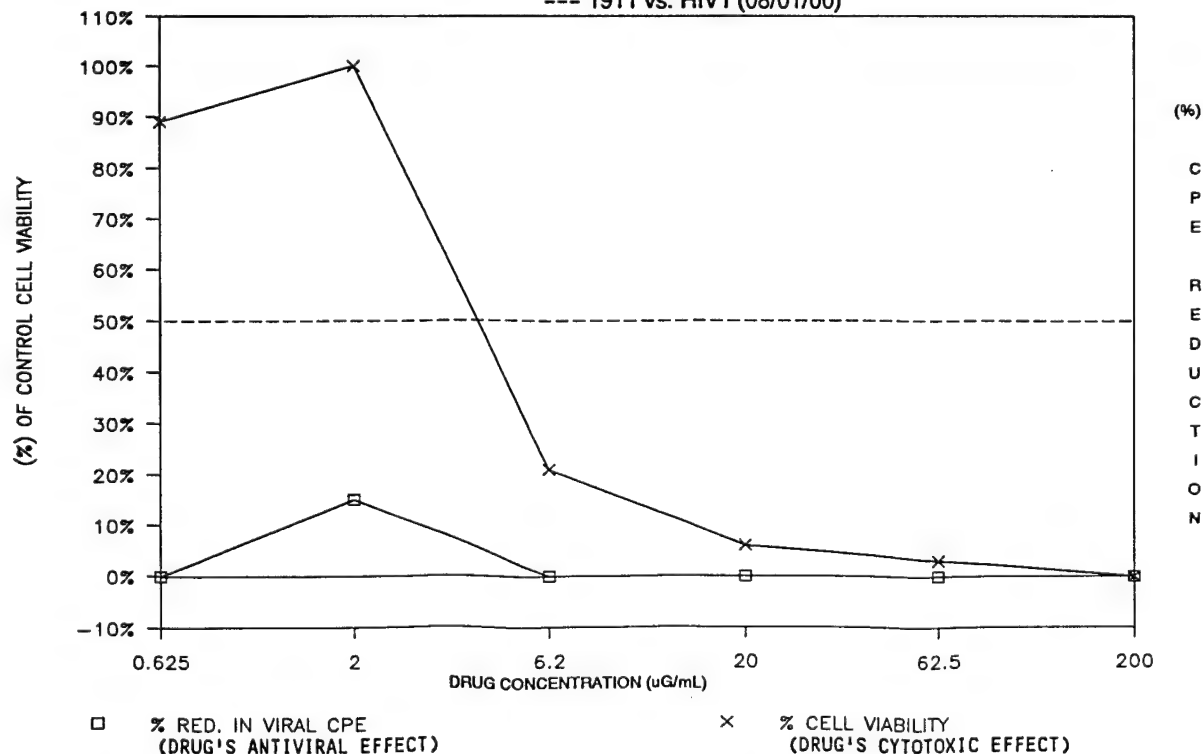


PLATE RFS
DRUG 1912

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1912
TAI: >1.78 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12	
A	reagent background						plastic background						
	0.434	0.394	0.417	0.411	0.407	0.423	0.047	0.051	0.051	0.050	0.052	0.058	
B	tox	cc/vc	drug 1912 experimental				tox					cc/vc	
C	1.895	1.827	0.689	0.735	0.790	1.720					1.585		
D	1.661	1.662	1.075	0.677	0.736	1.676					1.724		
E	1.649	1.718	0.908	0.711	0.611	1.668					1.703		
F	1.560	0.683	0.629	0.789	0.602	1.637					0.780		
G	1.139	0.648	0.588	0.885	0.626	1.200					0.622		
H	0.507	0.804	0.516	0.509	0.484	0.530					0.692		
H	colorimetric background												
	0.535	0.450	0.427	0.429	0.415	0.428							
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities													

VIRUS CELLS	HIV1	PASSAGE --	PROJECT #	--
SHIPMENT NUMBER	CEMSS	PASSAGE --	SPONSOR	WALTER REED
STRN	--	OPERATOR KMW	TEST DATE	08/01/00
REAGENT	RF		DATE READ	08/01/00
VIRUS CONTROL	0.414			
CELL CONTROL	0.291			
DIFFERENTIAL	1.289			
	0.998			

DRUG 1912	25%	50%	95%
TC (uG/mL)	39.40	77.20	188.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1912		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.019	2%	1.379	100%	0.014
C	2	0.123	12%	1.253	97%	0.001
D	6.25	0.023	2%	1.229	95%	0.015
E	20	-.045	0%	1.171	91%	0.013
F	62.5	-.041	0%	0.719	56%	0.036
high G	200	-.323	0%	-.017	0%	0.121

SUMMARY GRAPH

--- 1912 vs. HIV1 (08/01/00)

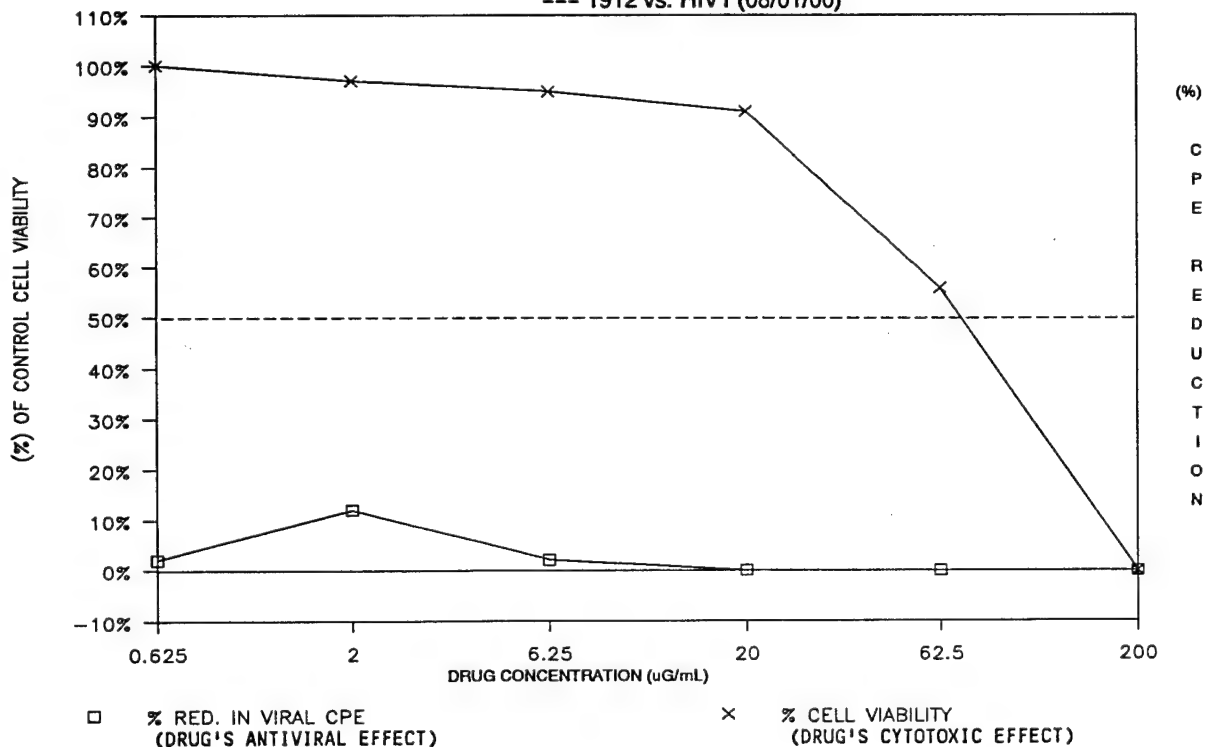


PLATE RFS
DRUG 1914

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1914
TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	0.434	0.394	reagent background			0.407	0.423	0.047	0.051	plastic background		
B		cc/vc					tox	drug 1914 experimental			cc/vc	tox
C		1.827					1.728	0.679	0.685	0.713	1.585	1.660
D		1.662					0.441	0.382	0.383	0.399	1.724	0.469
E		1.718					0.399	0.383	0.397	0.405	1.703	0.429
F		0.683					0.397	0.393	0.391	0.414	0.780	0.433
G		0.648					0.377	0.372	0.383	0.392	0.622	0.418
H		0.804					0.390	0.390	0.400	0.404	0.692	0.425
							colorimetric background					
							0.402	0.428	0.414	0.421	0.430	0.454

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF
0.414
0.291
1.289
0.998

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1914	25%	50%	95%
TC (UG/mL)	0.93	1.30	1.96
IC (UG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1914		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (UG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.053	0%	1.240	96%	0.040
C	2	-.333	0%	0.025	2%	0.016
D	6.2	-.317	0%	-.007	0%	0.007
E	20	-.306	0%	0.001	0%	0.000
F	62.5	-.337	0%	-.031	0%	0.014
high G	200	-.295	0%	0.005	0%	-.012

SUMMARY GRAPH

--- 1914 vs. HIV1 (08/01/00)

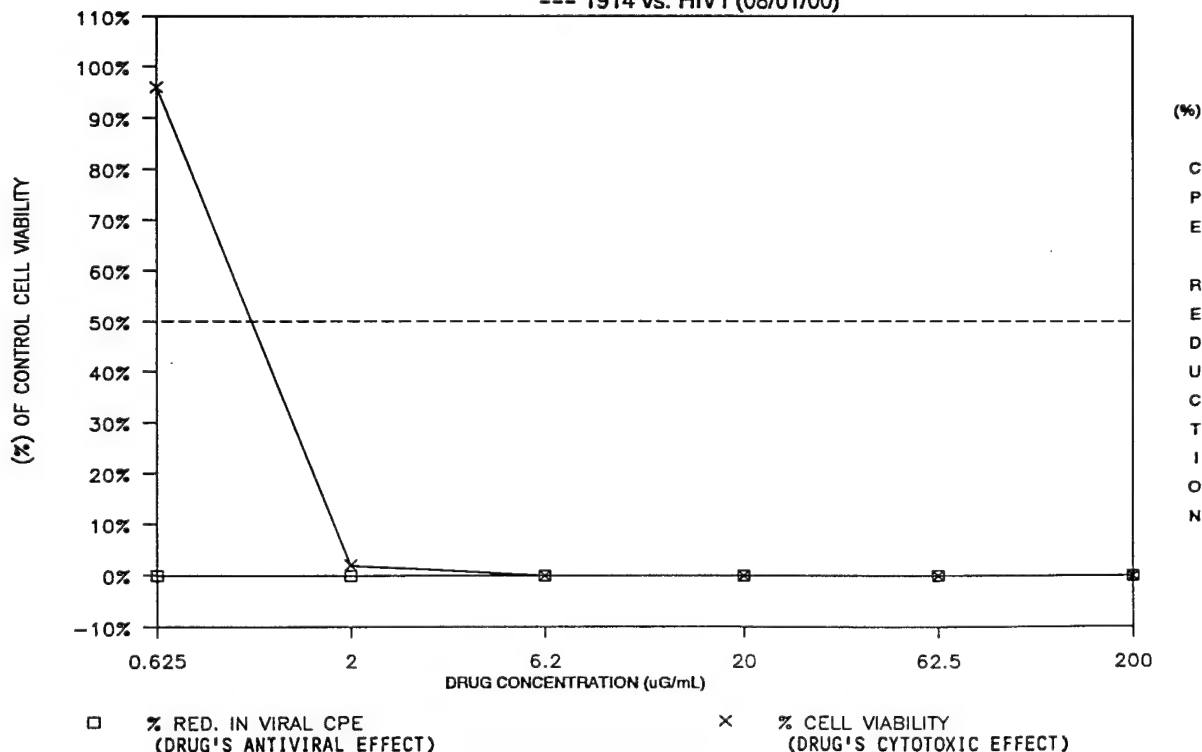


PLATE RFT
 DRUG 1915

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1915
 TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.386	0.387	0.384	0.377	0.382	0.413	0.054	0.056	0.055	0.056	0.058	0.062
B	tox	cc/vc	drug 1915 experimental				tox				cc/vc	
C	1.540	1.535	0.697	0.686	0.626	1.676					1.620	
D	1.557	1.554	0.593	0.685	0.753	1.611					1.549	
E	1.488	1.607	0.544	0.609	0.550	1.619					1.593	
F	0.469	0.724	0.423	0.487	0.426	0.447					0.709	
G	0.510	0.641	0.494	0.464	0.504	0.508					0.690	
H	0.769	0.682	0.788	0.776	0.707	0.675					0.635	
colorimetric background												
H	0.758	0.523	0.450	0.423	0.407	0.418						

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1 PASSAGE --
 CEMSS PASSAGE --
 -- OPERATOR KMW
 RF

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

DRUG 1915	25%	50%	95%
TC (uG/mL)	9.18	12.80	19.40
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1915		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.040	0%	1.190	100%	0.030
C	2	-.022	0%	1.177	99%	0.019
D	6.25	-.147	0%	1.130	95%	0.035
E	20	-.297	0%	0.008	1%	0.062
F	62.5	-.328	0%	-.014	0%	0.135
high G	200	-.293	0%	-.036	0%	0.370

SUMMARY GRAPH

--- 1915 vs. HIV1 (08/01/00)

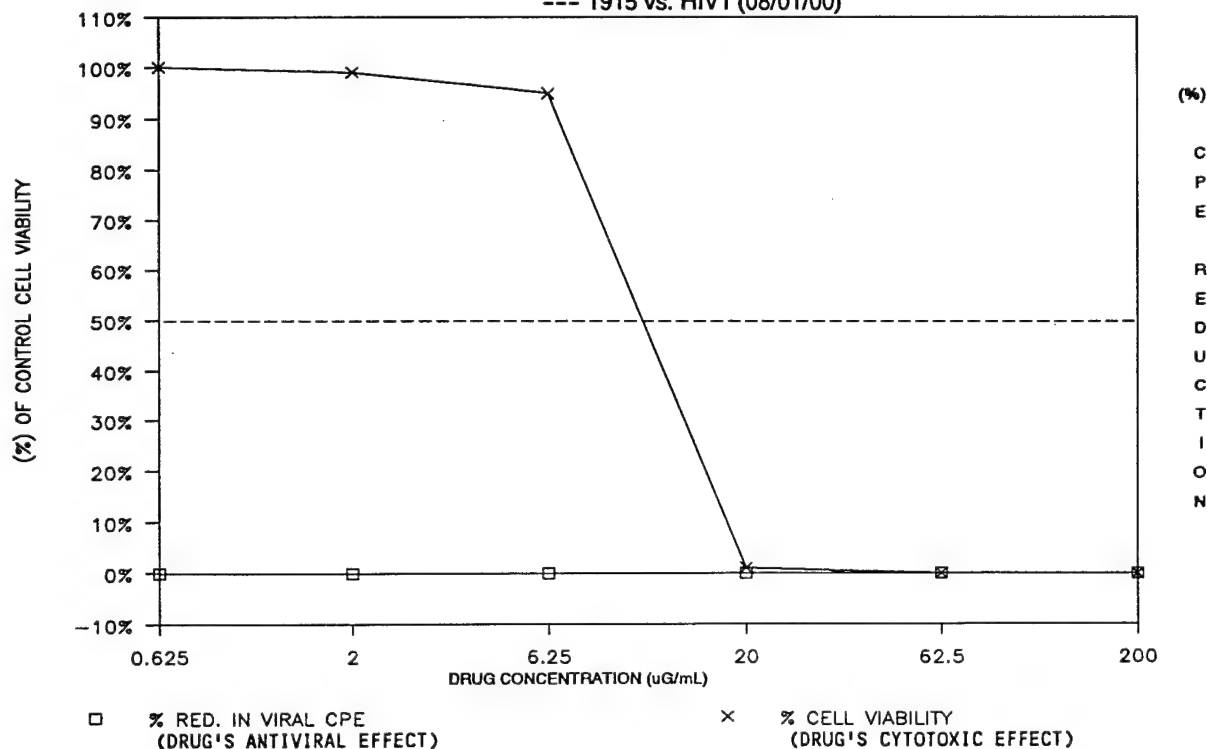


PLATE RFT
DRUG 1916

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1916
TAI: 2.91 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.386	0.387	0.384	0.377	0.382	0.413	0.054	0.056	0.055	0.056	0.058	0.062
B		cc/vc					tox	drug 1916 experimental				cc/vc
C		1.535					1.558	0.630	0.750	0.720	1.620	1.541
D		1.554					1.535	0.660	0.602	0.695	1.549	1.562
E		1.607					1.619	1.550	0.585	0.610	1.593	1.645
F		0.724					1.245	0.580	0.633	0.556	0.709	1.658
G		0.641					0.495	0.474	0.462	0.471	0.690	0.505
H		0.682					0.662	0.633	0.614	0.618	0.635	0.628
							colorimetric background					
							0.614	0.497	0.442	0.435	0.416	0.448
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities												

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1
CEMSS
--
RF
0.388
0.292
1.188
0.896

PASSAGE --
PASSAGE --
OPERATOR KMW

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1916	25%	50%	95%
TC (uG/mL)	25.00	37.50	60.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1916		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.040	0%	1.101	93%	0.060
C	2	-.056	0%	1.132	95%	0.028
D	6.2	0.188	21%	1.197	100%	0.047
E	20	-.144	0%	1.009	85%	0.054
F	62.5	-.320	0%	0.003	0%	0.109
high G	200	-.285	0%	0.031	3%	0.226

SUMMARY GRAPH

--- 1916 vs. HIV1 (08/01/00)

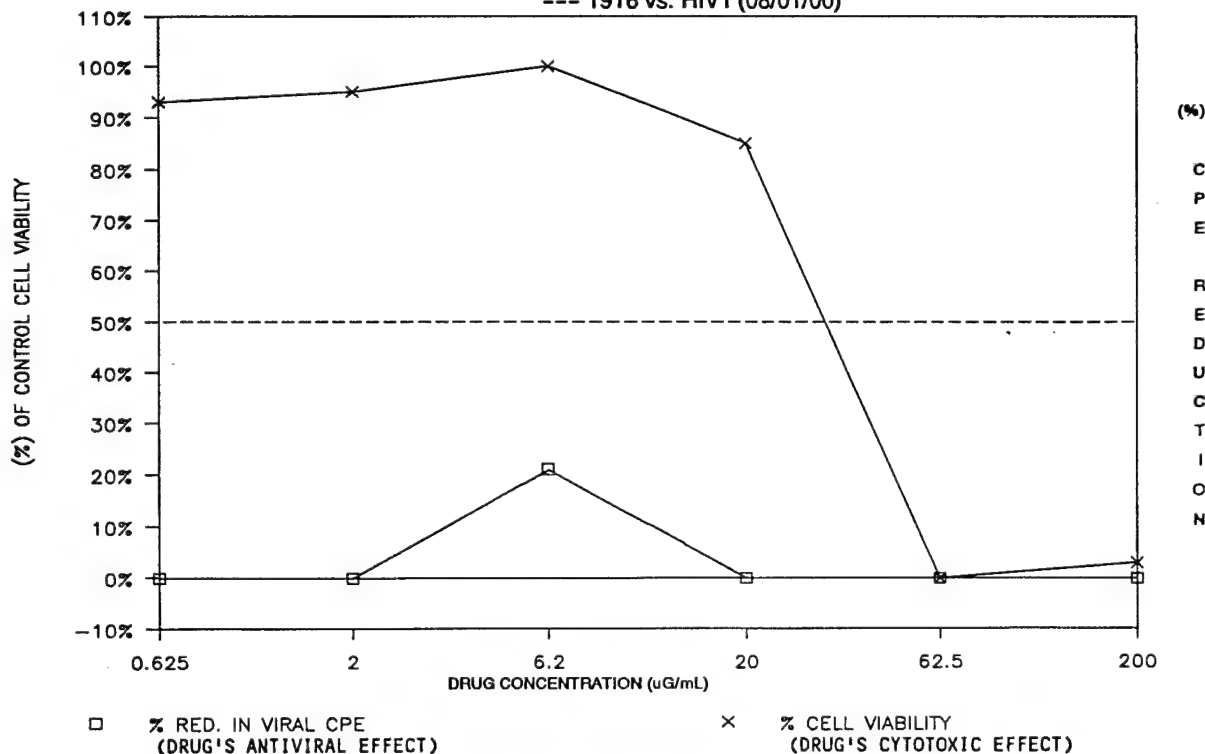


PLATE RFU
 DRUG 1917

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1917
 TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
	reagent background					plastic background						
A	0.419	0.345	0.390	0.390	0.393	0.404	0.063	0.068	0.068	0.069	0.071	0.071
B	tox	cc/vc	drug 1917 experimental				tox				cc/vc	
C	1.468	1.512	0.633	0.758	0.748	1.654					1.581	
D	1.410	1.530	0.611	0.657	0.699	1.599					1.577	
E	1.512	1.564	0.601	0.622	0.675	1.703					1.651	
F	1.245	1.113	0.521	0.511	0.565	1.481					0.684	
G	0.475	0.816	0.494	0.490	0.515	0.533					0.810	
H	0.438	0.711	0.415	0.417	0.394	0.428					0.775	
	colorimetric background					0.433	0.409	0.388	0.411	0.417	0.420	
	tox=cell toxicity		cc=cell control		vc=virus control		BOLD = highest drug conc			values shown are optical densities		

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN

HIV1 PASSAGE --
 CEMSS PASSAGE --
 OPERATOR KMW
 RF

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

REAGENT 0.390
 VIRUS CONTROL 0.428
 CELL CONTROL 1.179
 DIFFERENTIAL 0.751

DRUG 1917	25%	50%	95%
TC (uG/mL)	24.50	38.70	114.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1917		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.135	0%	1.141	97%	0.030
C	2	-.190	0%	1.087	92%	0.027
D	6.25	-.207	0%	1.196	100%	0.021
E	20	-.284	0%	0.975	83%	-.002
F	62.5	-.338	0%	0.095	8%	0.019
high G	200	-.453	0%	0.000	0%	0.043

SUMMARY GRAPH

--- 1917 vs. HIV1 (08/01/00)

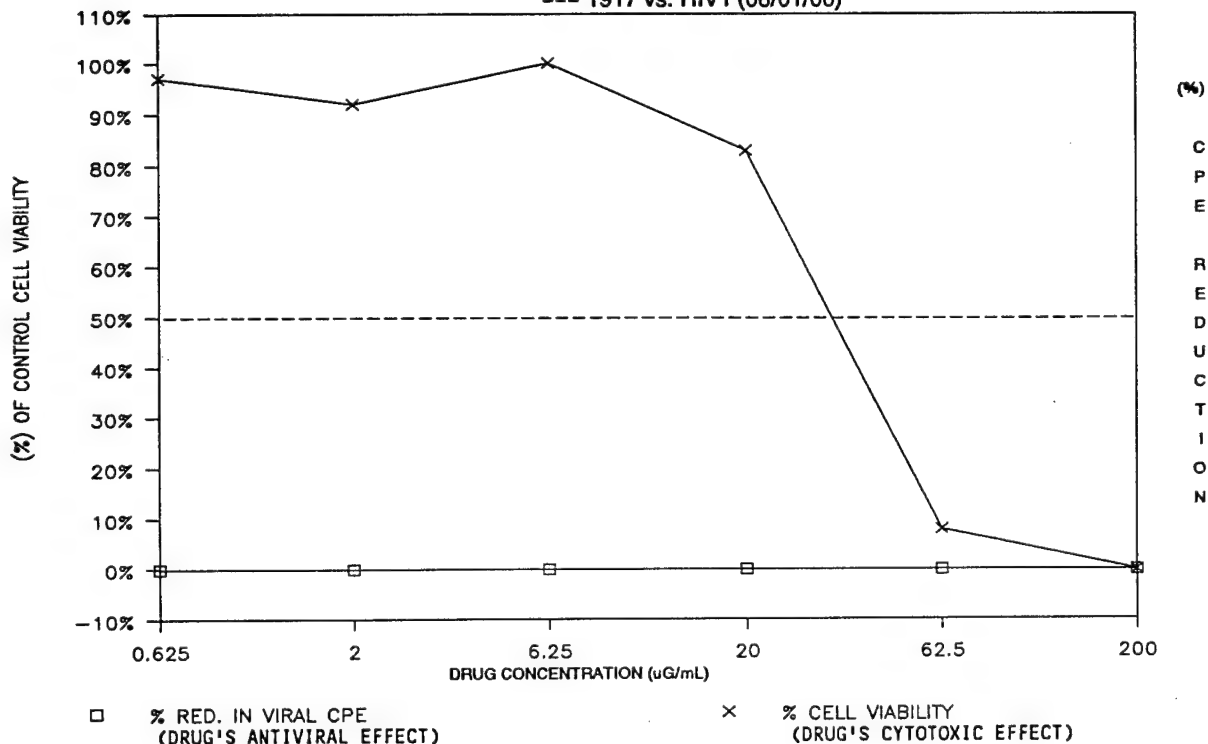


PLATE RFU
DRUG 1918

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1918
TAI: 5.49 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12			
A	reagent background						plastic background								
	0.419	0.345	0.390	0.390	0.393	0.404	0.063	0.068	0.068	0.069	0.071	0.071			
B		cc/vc					tox	drug 1918 experimental			cc/vc	tox			
C		1.512								1.667	0.688	0.713	0.698	1.581	1.651
D		1.530								1.507	0.732	0.735	1.513	1.577	1.660
E		1.564								1.800	1.016	1.061	0.737	1.651	1.609
F		1.113								1.831	0.893	0.902	0.795	0.684	1.733
G		0.816					1.716	1.477	0.985	1.097	0.810	1.720			
		0.711					0.968	0.945	0.959	0.935	0.775	0.964			
H							colorimetric background								
							1.010	0.661	0.494	0.450	0.419	0.448			
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities															

VIRUS CELLS	HIV1 CEMSS	PASSAGE --	PROJECT #	--	
SHIPMENT NUMBER	--	<u>PASSAGE --</u>	SPONSOR	WALTER REED	
STRN	RF	OPERATOR KMW	TEST DATE	08/01/00	
			DATE READ	08/01/00	
REAGENT	0.390	DRUG 1918	25%	50%	95%
VIRUS CONTROL	0.428	TC (uG/mL)	85.40	124.00	192.00
CELL CONTROL	1.179	IC (uG/mL)	-----	-----	-----
DIFFERENTIAL	0.751	ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1918		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-0.177	0%	1.211	100%	0.058
C	2	0.146	19%	1.164	99%	0.029
D	6.2	0.060	8%	1.254	100%	0.060
E	20	-0.059	0%	1.288	100%	0.104
F	62.5	0.097	13%	1.057	90%	0.271
high G	200	-0.492	0%	-0.044	0%	0.620

SUMMARY GRAPH

--- 1918 vs. HIV1 (08/01/00)

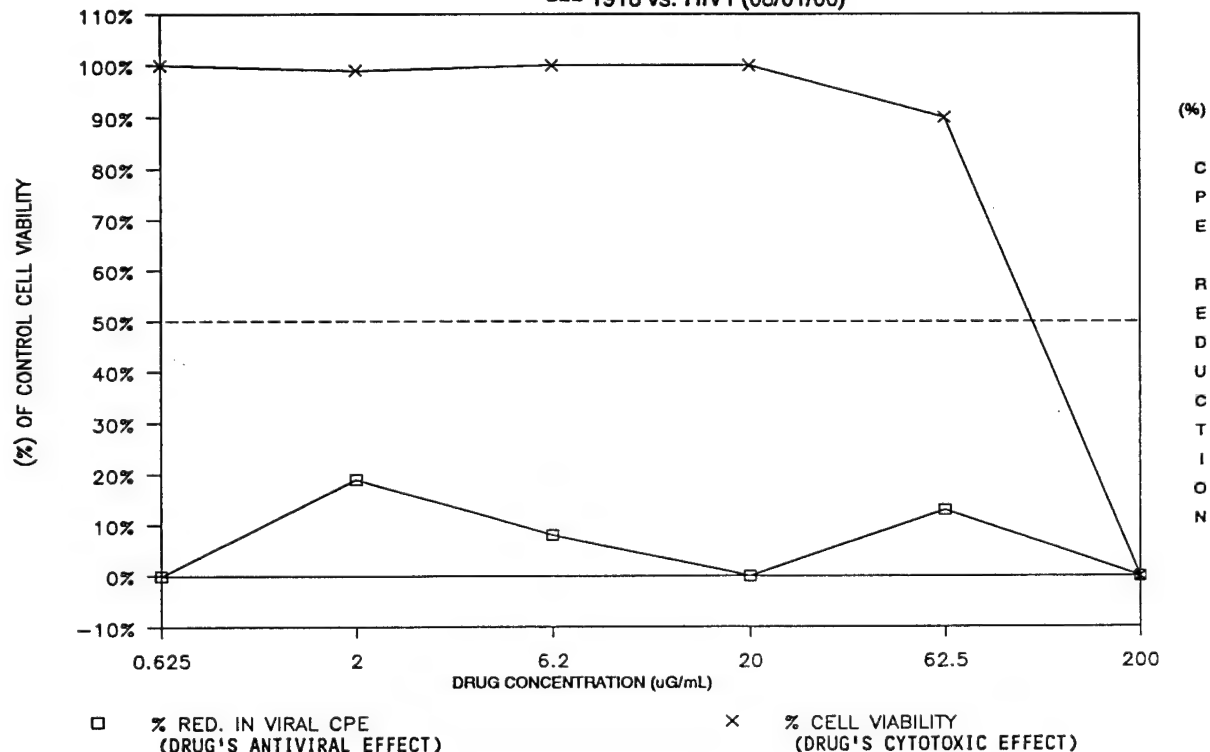


PLATE RFV
 DRUG 1919

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1919
 TAI: >0.10 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.405	0.361	0.378	0.373	0.379	0.373	0.045	0.050	0.049	0.055	0.055	0.061
B	tox 1.556	cc/vc 1.524	drug 1919 experimental				tox 1.645					cc/vc 1.661
C	1.870	1.625	1.004	0.725	0.630	1.855					1.593	
D	1.608	1.604	0.692	0.656	0.724	1.836					1.631	
E	1.419	1.132	0.629	0.652	0.591	1.690					0.650	
F	0.449	0.714	0.424	0.433	0.428	0.408					0.700	
G	0.458	0.710	0.448	0.464	0.472	0.466					0.655	
H	colorimetric background											
	0.477	0.428	0.423	0.416	0.434	0.429						

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1 PASSAGE --
 CEMSS PASSAGE --
 -- OPERATOR KMW
 RF

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

REAGENT	0.378	DRUG 1919	25%	50%	95%
VIRUS CONTROL	0.382	TC (uG/mL)	27.90	39.40	60.20
CELL CONTROL	1.228	IC (uG/mL)	-----	-----	-----
DIFFERENTIAL	0.846	ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1919		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.054	6%	1.171	95%	0.051
C	2	-.030	0%	1.428	100%	0.056
D	6.25	-.107	0%	1.306	100%	0.038
E	20	-.181	0%	1.131	92%	0.045
F	62.5	-.382	0%	0.000	0%	0.050
high G	200	-.398	0%	-.015	0%	0.099

SUMMARY GRAPH

--- 1919 vs. HIV1 (08/01/00)

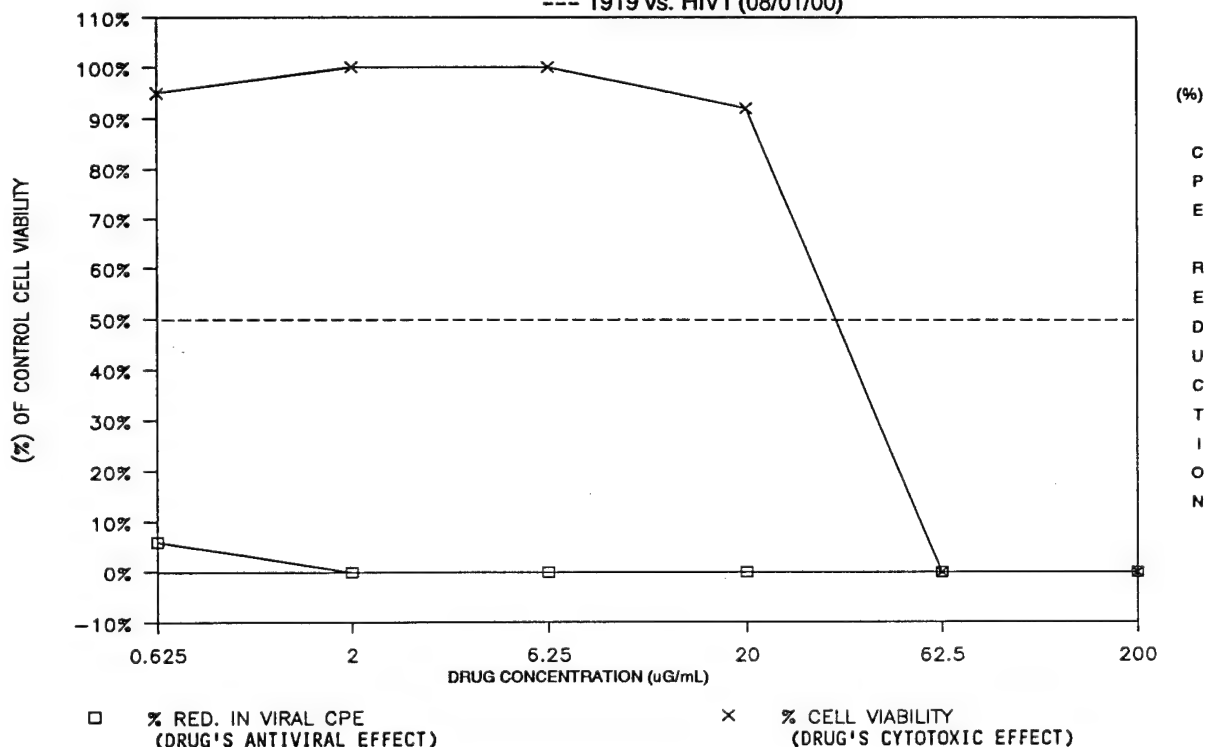


PLATE RFV
DRUG 1920

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1920
TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.405	0.361	0.378	0.373	0.379	0.373	0.045	0.050	0.049	0.055	0.055	0.061
B		cc/vc					tox	drug 1920 experimental			cc/vc	tox
C		1.524					1.544	0.793	0.762	0.840	1.661	1.597
D		1.625					1.746	0.615	0.685	0.747	1.593	1.539
E		1.604					1.544	0.770	0.629	1.334	1.631	1.474
F		1.132					1.158	0.625	0.621	1.375	0.650	1.148
G		0.714					0.506	0.563	0.620	0.570	0.700	0.521
H		0.710					0.670	0.668	0.618	0.647	0.655	0.661
							colorimetric background					
							0.696	0.516	0.457	0.430	0.418	0.425
tox=cell toxicity cc=cell control vc=virus control							BOLD = highest drug conc values shown are optical densities					

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1
CEMSS
PASSAGE --
PASSAGE --
OPERATOR KMW
RF
0.378
0.382
1.228
0.846

PROJECT #
SPONSOR
TEST DATE
DATE READ

--
WALTER REED
08/01/00
08/01/00

DRUG 1920	25%	50%	95%
TC (uG/mL)	12.00	25.20	58.80
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1920		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.009	0%	1.145	93%	0.047
C	2	-.118	0%	1.224	100%	0.040
D	6.2	0.099	12%	1.079	88%	0.052
E	20	0.034	4%	0.696	57%	0.079
F	62.5	-.314	0%	-.003	0%	0.138
high G	200	-.434	0%	-.031	0%	0.318

SUMMARY GRAPH

--- 1920 vs. HIV1 (08/01/00)

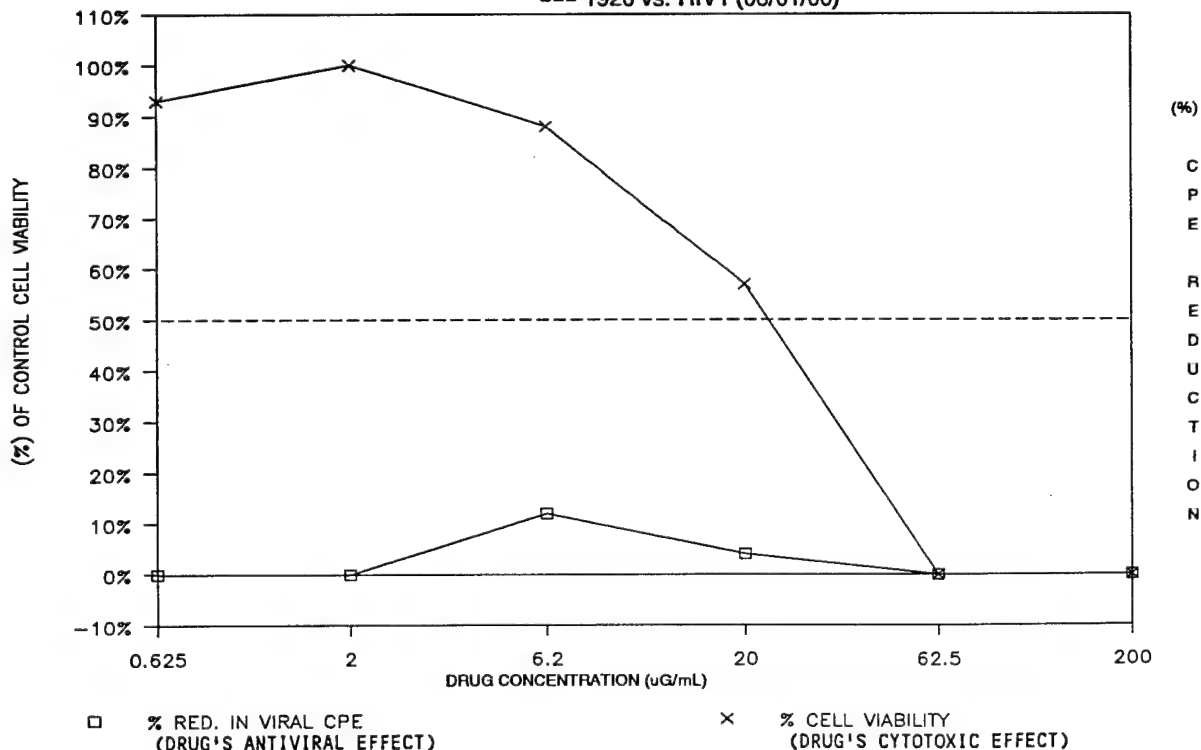


PLATE RFW
 DRUG 1921

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1921
 TAI: 0.79 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12	
A	reagent background						plastic background						
	0.381	0.366	0.370	0.361	0.369	0.363	0.046	0.044	0.044	0.053	0.055	0.053	
B	tox	cc/vc	drug 1921 experimental				tox					cc/vc	
C	1.436	1.574	0.627	0.647	0.613	1.572					1.489		
D	1.453	1.633	0.659	0.637	0.623	1.577					1.662		
E	1.379	1.486	0.589	0.656	0.601	1.463					1.606		
F	1.457	0.681	0.704	1.229	1.061	1.460					0.664		
G	0.508	0.675	0.534	0.867	0.933	0.865					0.626		
H	0.469	0.687	0.487	0.470	0.492	0.481					0.645		
H	colorimetric background												
	0.500	0.451	0.448	0.352	0.327	0.357							
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities													

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1 PASSAGE --
 CEMSS PASSAGE --
 -- OPERATOR KMW
 RF
 0.368
 0.295
 1.207
 0.912

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

DRUG 1921	25%	50%	95%
TC (uG/mL)	25.90	42.20	164.00
IC (uG/mL)	17.70	-----	-----
ANTIVIRAL INDEX (AI)	1.47	-----	-----

DRUG 1921		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-0.023	0%	1.147	95%	-0.011
C	2	0.018	2%	1.188	98%	-0.041
D	6.25	-0.032	0%	1.069	89%	-0.016
E	20	0.255	28%	1.010	84%	0.080
F	62.5	0.032	4%	0.235	19%	0.083
high G	200	-0.312	0%	-0.025	0%	0.132

SUMMARY GRAPH

--- 1921 vs. HIV1 (08/01/00)

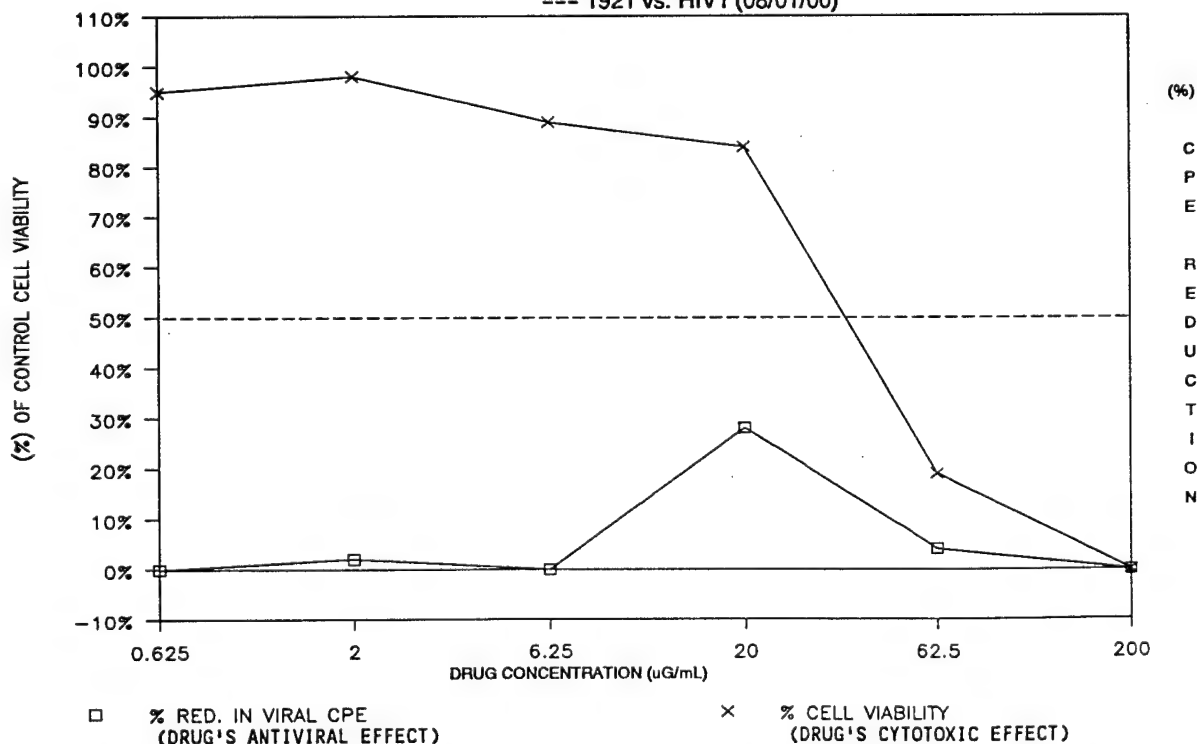


PLATE RFW
DRUG 1923

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1923
TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.381	0.366	0.370	0.361	0.369	0.363	0.046	0.044	0.044	0.053	0.055	0.053
B		cc/vc					tox	drug 1923 experimental			cc/vc	tox
C		1.574					1.538	0.586	0.598	0.578	1.489	1.540
D		1.633					1.618	0.689	0.872	0.511	1.662	1.601
E		1.486					1.417	0.932	0.484	1.184	1.606	1.379
F		0.681					0.499	0.430	0.459	0.448	0.664	0.471
G		0.675					0.539	0.529	0.509	0.521	0.626	0.540
H		0.687					0.717	0.725	0.693	0.708	0.645	0.750
							colorimetric background					
							0.726	0.568	0.472	0.415	0.431	0.451
tox=cell toxicity			cc=cell control		vc=virus control		BOLD = highest drug conc			values shown are optical densities		

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF
0.368
0.295
1.207
0.912

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1923	25%	50%	95%
TC (uG/mL)	7.28	11.60	19.30
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1923		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-0.159	0%	1.088	90%	0.083
C	2	-0.035	0%	1.178	98%	0.063
D	6.2	0.157	17%	0.983	81%	0.047
E	20	-0.321	0%	0.013	1%	0.104
F	62.5	-0.343	0%	-0.029	0%	0.200
high G	200	-0.312	0%	0.007	1%	0.358

SUMMARY GRAPH

--- 1923 vs. HIV1 (08/01/00)

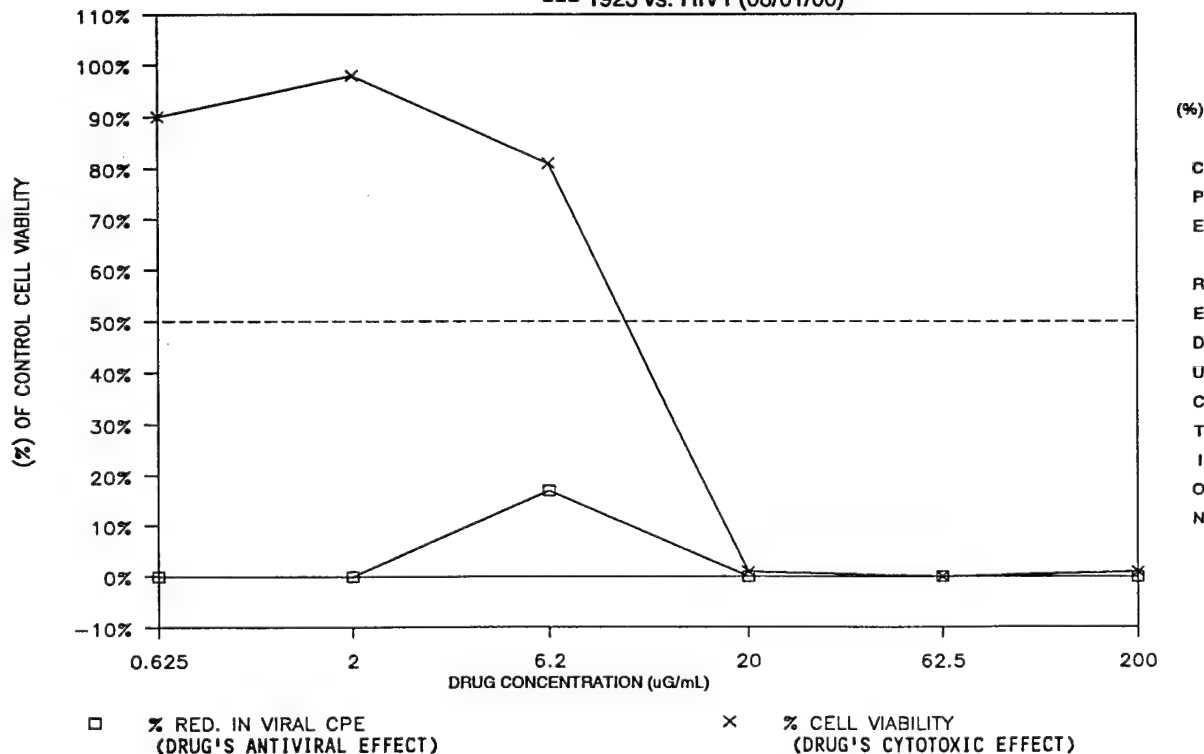


PLATE RFX
DRUG 1924

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1924
TAI: >3.43 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.393	0.396	0.391	0.393	0.390	0.397	0.043	0.049	0.049	0.049	0.052	0.056
B	tox	cc/vc	drug 1924 experimental				tox				cc/vc	
C	1.385	1.360	1.282	0.625	0.614	1.627					1.452	
D	1.407	1.411	0.629	0.606	0.578	1.417					1.440	
E	1.462	1.566	0.634	0.582	0.690	1.652					1.639	
F	1.534	0.664	0.575	0.701	0.604	1.727					0.613	
G	1.579	0.668	1.125	0.594	0.669	1.697					0.744	
H	1.519	0.665	0.578	0.754	1.074	1.694					0.594	
H	colorimetric background											
	0.559	0.424	0.472	0.465	0.438	0.431						
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities												

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF
0.393
0.265
1.085
0.820

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1924	25%	50%	95%
TC (uG/mL)	> 200.00	> 200.00	> 200.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1924		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.144	18%	1.075	99%	0.038
C	2	-0.099	0%	0.974	90%	0.045
D	6.25	-0.095	0%	1.092	100%	0.072
E	20	-0.110	0%	1.158	100%	0.079
F	62.5	0.107	13%	1.214	100%	0.031
high G	200	-0.022	0%	1.047	97%	0.166

SUMMARY GRAPH

--- 1924 vs. HIV1 (08/01/00)

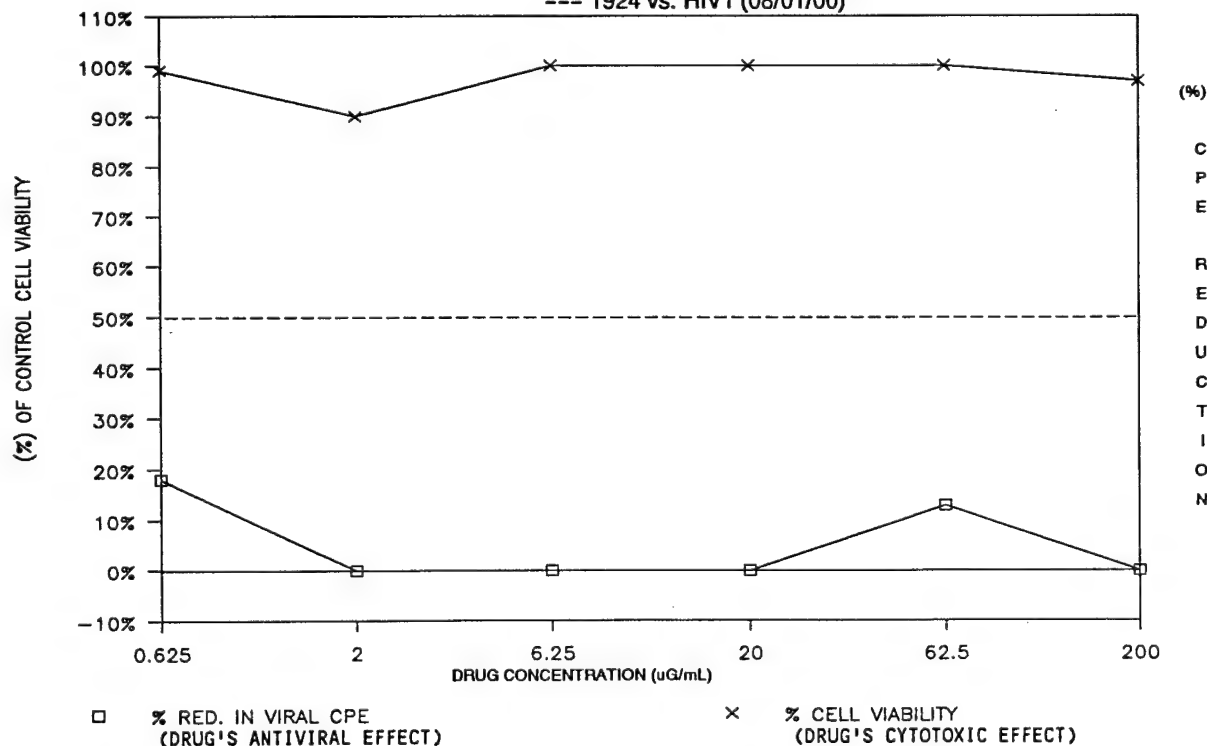


PLATE RFX
 DRUG 1925

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1925
 TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.393	0.396	0.391	0.393	0.390	0.397	0.043	0.049	0.049	0.049	0.052	0.056
B		cc/vc					tox	drug 1925 experimental		cc/vc	tox	
C		1.360					1.532	0.625	0.620	0.742	1.452	1.450
D		1.411					1.503	0.563	0.554	0.488	1.440	1.362
E		1.566					1.586	0.704	0.563	0.601	1.639	1.513
F		0.664					1.538	0.508	0.525	0.565	0.613	1.427
G		0.668					0.503	0.484	0.421	0.516	0.744	0.524
H		0.665					0.436	0.432	0.423	0.464	0.594	0.489
							colorimetric background					
							0.493	0.423	0.427	0.430	0.407	0.435

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS CELLS	HIV1	PASSAGE --	PROJECT #	--
SHIPMENT NUMBER	CEMSS	PASSAGE --	SPONSOR	WALTER REED
STRN	--	OPERATOR KMW	TEST DATE	08/01/00
REAGENT	RF		DATE READ	08/01/00
VIRUS CONTROL	0.393			
CELL CONTROL	0.265			
DIFFERENTIAL	1.085			
	0.820			

DRUG 1925	25%	50%	95%
TC (uG/mL)	30.50	42.40	114.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1925		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.038	0%	1.056	97%	0.042
C	2	-.137	0%	1.025	94%	0.014
D	6.2	-.072	0%	1.119	100%	0.037
E	20	-.159	0%	1.055	97%	0.034
F	62.5	-.214	0%	0.090	8%	0.030
high G	200	-.318	0%	-.031	0%	0.100

SUMMARY GRAPH

--- 1925 vs. HIV1 (08/01/00)

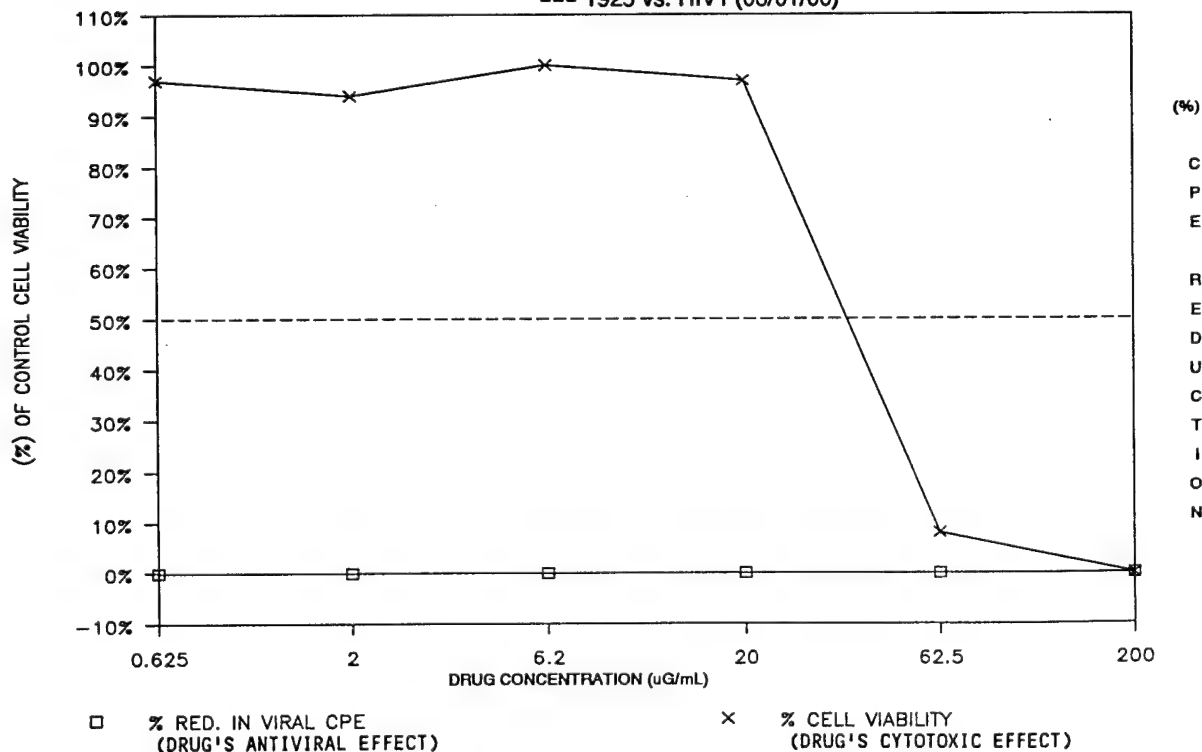


PLATE RFY
 DRUG 1927

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1927
 TAI: 0.80 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
reagent background						plastic background						
A	0.436	0.390	0.425	0.417	0.408	0.421	0.054	0.055	0.054	0.056	0.057	0.060
B	tox	cc/vc	drug 1927 experimental				tox					cc/vc
C	1.559	1.573	0.715	0.697	0.695	1.649					1.549	
D	1.543	1.603	0.682	0.696	0.819	1.655					1.612	
E	1.611	1.660	0.608	0.712	0.746	1.844					1.516	
F	1.580	0.705	0.565	0.625	0.555	1.549					0.659	
G	0.828	0.731	0.818	0.792	0.823	0.907					0.741	
H	0.464	0.602	0.455	0.450	0.445	0.448					0.766	
colorimetric background												
H	0.507	0.443	0.430	0.428	0.417	0.432						

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1 PASSAGE --
 CEMSS PASSAGE --
 -- OPERATOR KMW
 RF
 0.416
 0.285
 1.169
 0.885

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

DRUG 1927	25%	50%	95%
TC (uG/mL)	35.30	52.70	181.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1927		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-0.014	0%	1.172	100%	0.016
C	2	0.031	4%	1.182	100%	0.001
D	6.25	-0.024	0%	1.299	100%	0.012
E	20	-0.133	0%	1.134	97%	0.014
F	62.5	0.083	9%	0.424	36%	0.027
high G	200	-0.342	0%	-0.051	0%	0.091

SUMMARY GRAPH

--- 1927 vs. HIV1 (08/01/00)

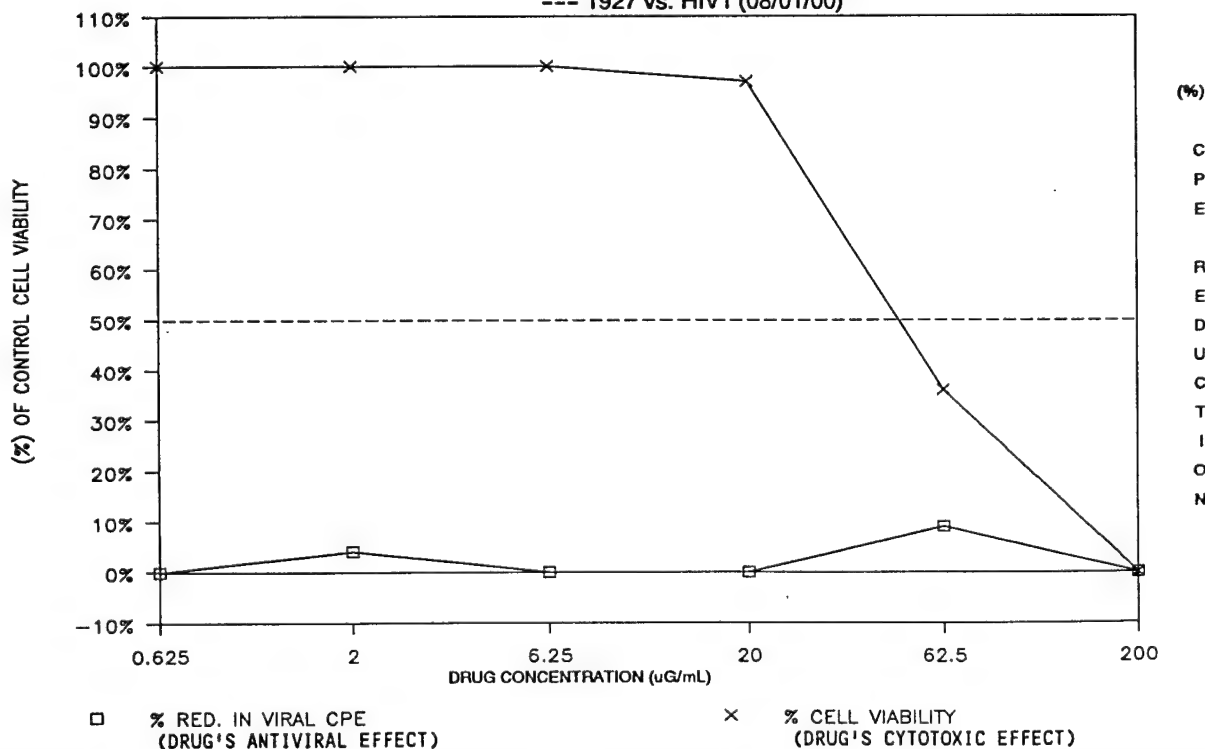


PLATE RFY
DRUG 1929

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1929
TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
	reagent background						plastic background					
A	0.436	0.390	0.425	0.417	0.408	0.421	0.054	0.055	0.054	0.056	0.057	0.060
B		cc/vc					tox	drug 1929 experimental			cc/vc	tox
C		1.573					0.775	0.900	0.772	1.107	1.549	0.761
D		1.603					0.747	0.984	0.985	0.835	1.612	0.777
E		1.660					0.707	0.651	0.960	0.710	1.516	0.531
F		0.705					0.439	0.464	0.482	0.507	0.659	0.471
G		0.731					0.403	0.398	0.379	0.412	0.741	0.421
H		0.602					0.468	0.467	0.483	0.487	0.766	0.495
							colorimetric background					
							0.481	0.423	0.421	0.431	0.441	0.454

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS CELLS HIV1 PASSAGE -- PROJECT # --
CEMSS PASSAGE -- SPONSOR WALTER REED
SHIPMENT NUMBER -- OPERATOR KMW TEST DATE 08/01/00
STRN RF DATE READ 08/01/00

REAGENT	0.416	DRUG 1929	25%	50%	95%
VIRUS CONTROL	0.285	TC (uG/mL)	< 0.63	< 0.63	17.90
CELL CONTROL	1.169	IC (uG/mL)	-----	-----	-----
DIFFERENTIAL	0.885	ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1929		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	CONTROL
low B	0.625	0.188	21%	0.314	27%	0.038
C	2	0.209	24%	0.321	27%	0.025
D	6.2	0.058	7%	0.188	16%	0.015
E	20	-0.221	0%	0.034	3%	0.005
F	62.5	-0.311	0%	-0.011	0%	0.007
high G	200	-0.287	0%	0.000	0%	0.065

SUMMARY GRAPH

--- 1929 vs. HIV1 (08/01/00)

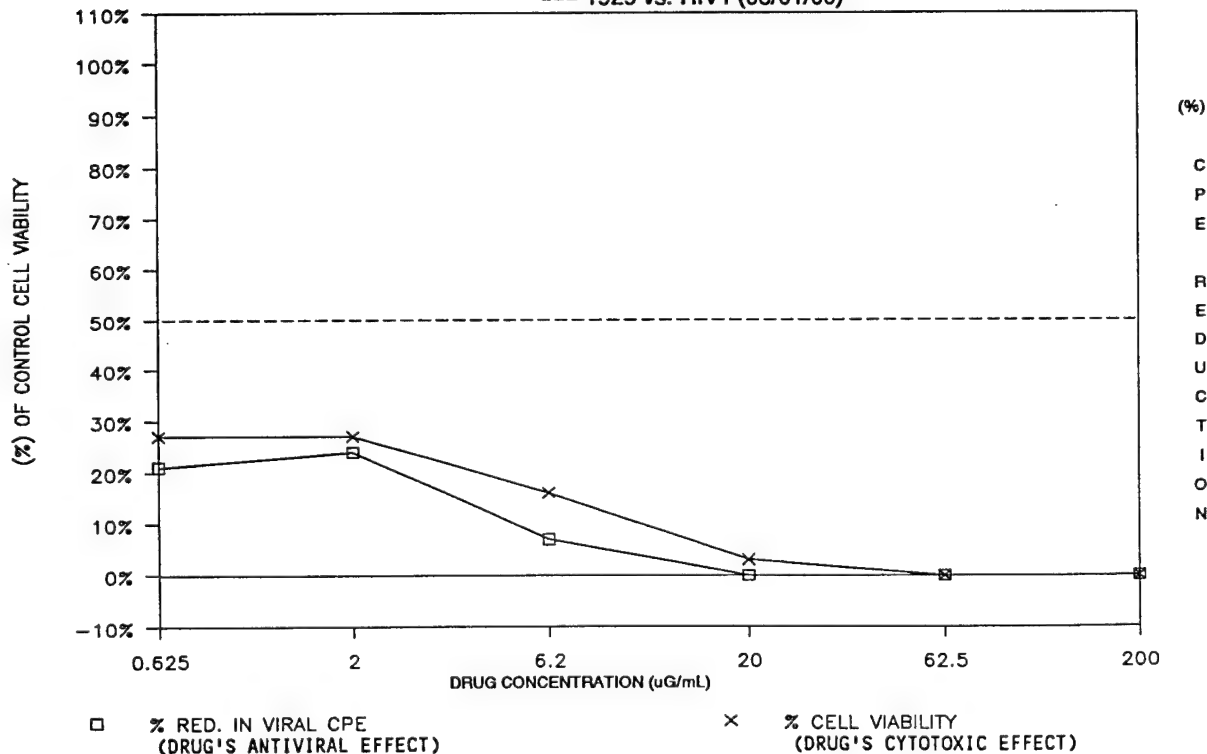


PLATE RFZ
DRUG 1930

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1930
TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background					plastic background						
	0.425	0.421	0.433	0.451	0.437	0.457	0.067	0.070	0.067	0.070	0.073	0.075
B	tox	cc/vc	drug 1930 experimental				tox					cc/vc
C	1.024	1.436	0.596	0.639	0.814	1.017					1.627	
D	0.875	1.495	0.894	0.879	0.784	0.975					1.697	
E	0.793	1.643	1.016	0.970	1.085	0.863					1.728	
F	0.721	0.940	0.830	0.950	0.706	0.691					0.727	
G	0.695	0.581	0.820	0.928	0.883	0.733					0.671	
H	1.007	0.956	0.991	1.047	1.003	1.020					0.746	
colorimetric background												
H	1.005	0.591	0.455	0.422	0.364	0.383						

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF
0.437
0.333
1.167
0.834

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1930	25%	50%	95%
TC (uG/mL)	< 0.63	1.61	145.00
IC (uG/mL)	3.38	-----	-----
ANTIVIRAL INDEX (AI)	< 0.18	-----	-----

DRUG 1930		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-0.033	0%	0.637	55%	-0.054
C	2	0.155	19%	0.561	48%	-0.073
D	6.25	0.268	32%	0.406	35%	-0.015
E	20	0.040	5%	0.251	22%	0.018
F	62.5	-0.047	0%	0.123	11%	0.154
high G	200	-0.325	0%	0.008	1%	0.568

SUMMARY GRAPH

--- 1930 vs. HIV1 (08/01/00)

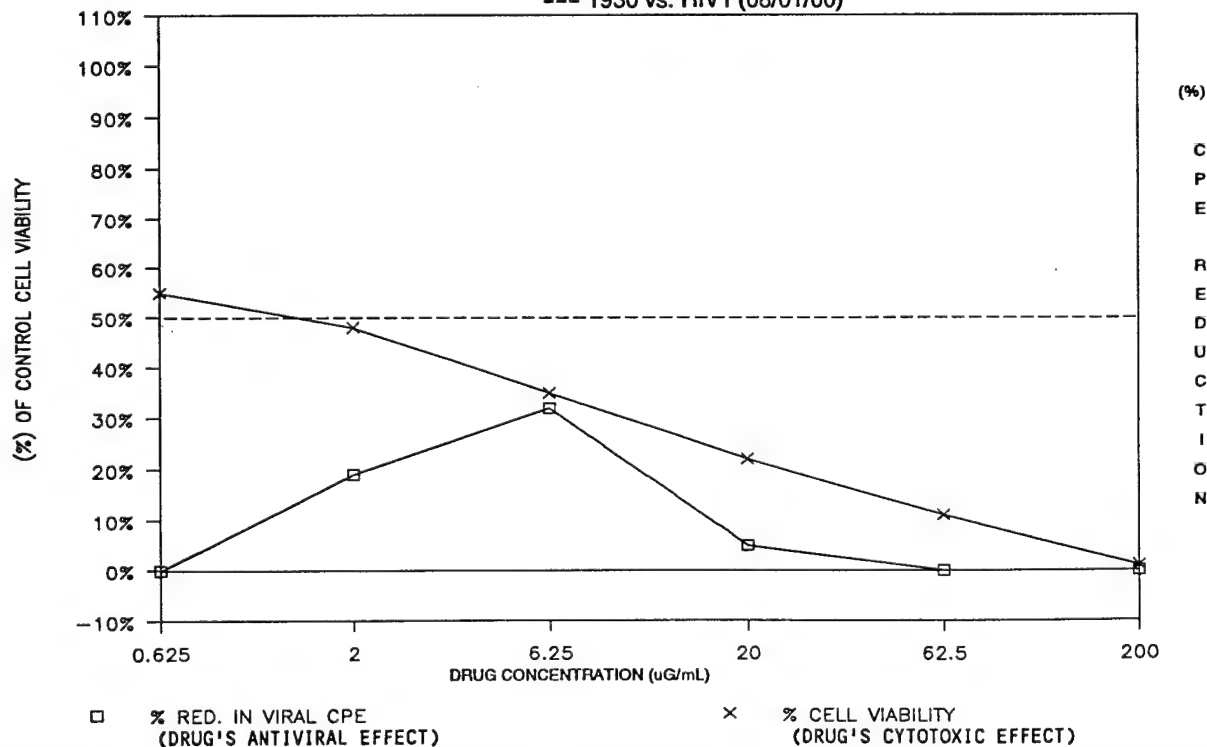


PLATE RFZ
 DRUG 1932

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1932
 TAI: 3.39 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
	reagent background					plastic background						
A	0.425	0.421	0.433	0.451	0.437	0.457	0.067	0.070	0.067	0.070	0.073	0.075
B		cc/vc					tox	drug 1932 experimental			cc/vc	tox
C		1.436					1.588	0.669	0.668	0.661	1.627	1.642
D		1.495					1.713	0.713	0.652	1.265	1.697	1.712
E		1.643					1.728	0.709	0.772	0.646	1.728	1.625
F		0.940					1.555	0.669	0.617	0.609	0.727	1.522
G		0.581					1.016	0.858	1.025	1.189	0.671	1.473
H		0.956					0.683	0.668	0.688	0.654	0.746	0.663
							colorimetric background					
							0.631	0.446	0.396	0.388	0.399	0.424

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1
 CEMSS
 --
 RF
 PASSAGE --
 PASSAGE --
 OPERATOR KMW

PROJECT #
 SPONSOR
 TEST DATE
 DATE READ

DRUG 1932	25%	50%	95%
TC (uG/mL)	52.60	101.00	198.00
IC (uG/mL)	53.40	-----	-----
ANTIVIRAL INDEX (AI)	0.98	-----	-----

DRUG 1932		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-0.091	0%	1.191	100%	-0.013
C	2	0.144	17%	1.313	100%	-0.038
D	6.2	-0.012	0%	1.288	100%	-0.049
E	20	-0.097	0%	1.142	98%	-0.041
F	62.5	0.245	29%	0.798	68%	0.009
high G	200	-0.294	0%	0.042	4%	0.194

SUMMARY GRAPH

--- 1932 vs. HIV1 (08/01/00)

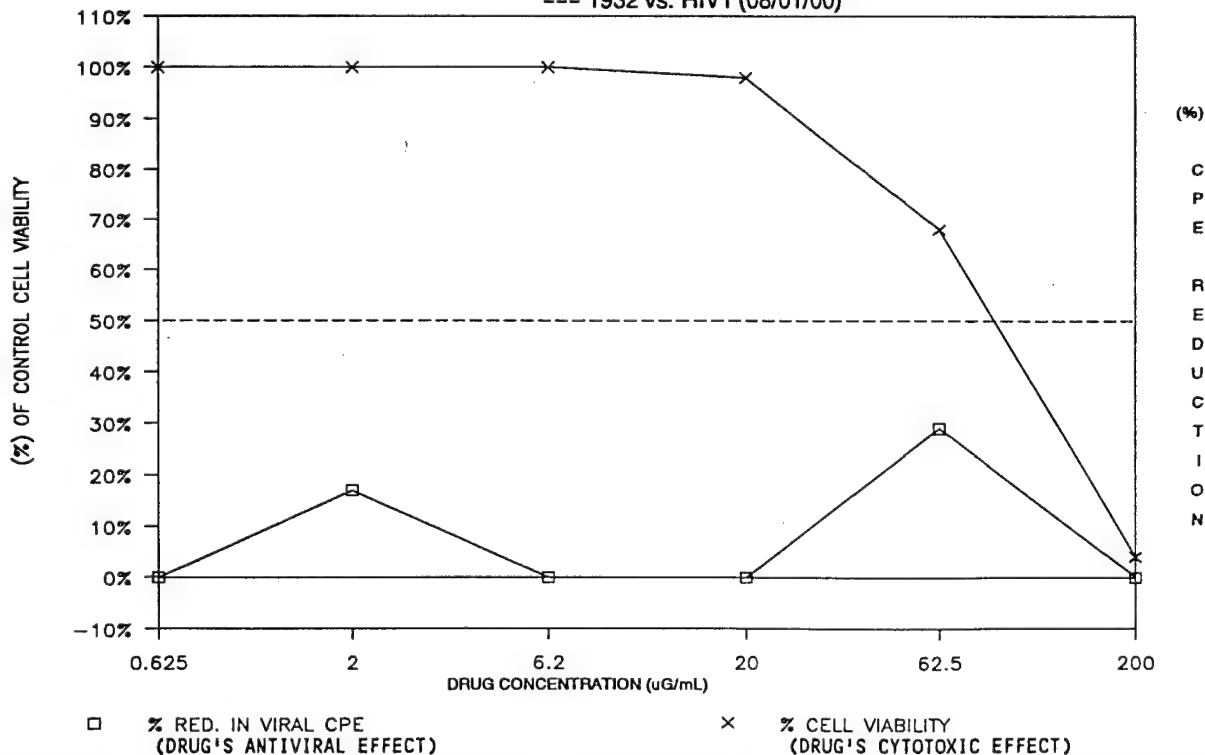


PLATE RG0
DRUG 1933

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1933
TAI: >3.79 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background					plastic background						
	0.405	0.358	0.394	0.400	0.390	0.432	0.042	0.047	0.046	0.046	0.052	0.061
B	tox	cc/vc	drug 1933 experimental				tox				cc/vc	
C	1.614	1.572	0.746	1.104	0.713	1.616					1.670	
D	1.590	1.554	0.633	0.708	0.653	1.788					1.744	
E	1.616	1.650	0.647	0.786	1.141	1.705					1.692	
F	1.626	0.820	0.650	1.237	0.656	1.700					0.771	
G	1.523	0.729	0.593	0.618	0.621	1.565					0.753	
H	0.757	0.641	0.949	1.054	0.658	1.303					0.677	
colorimetric background												
H	0.537	0.441	0.423	0.424	0.406	0.426						

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF
0.397
0.335
1.251
0.915

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1933	25%	50%	95%
TC (uG/mL)	99.00	169.00	> 200.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1933		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.094	10%	1.190	95%	0.029
C	2	-0.077	0%	1.283	100%	0.010
D	6.25	0.099	11%	1.237	99%	0.027
E	20	0.090	10%	1.241	99%	0.026
F	62.5	-0.165	0%	1.104	88%	0.044
high G	200	0.014	2%	0.492	39%	0.141

SUMMARY GRAPH

--- 1933 vs. HIV1 (08/01/00)

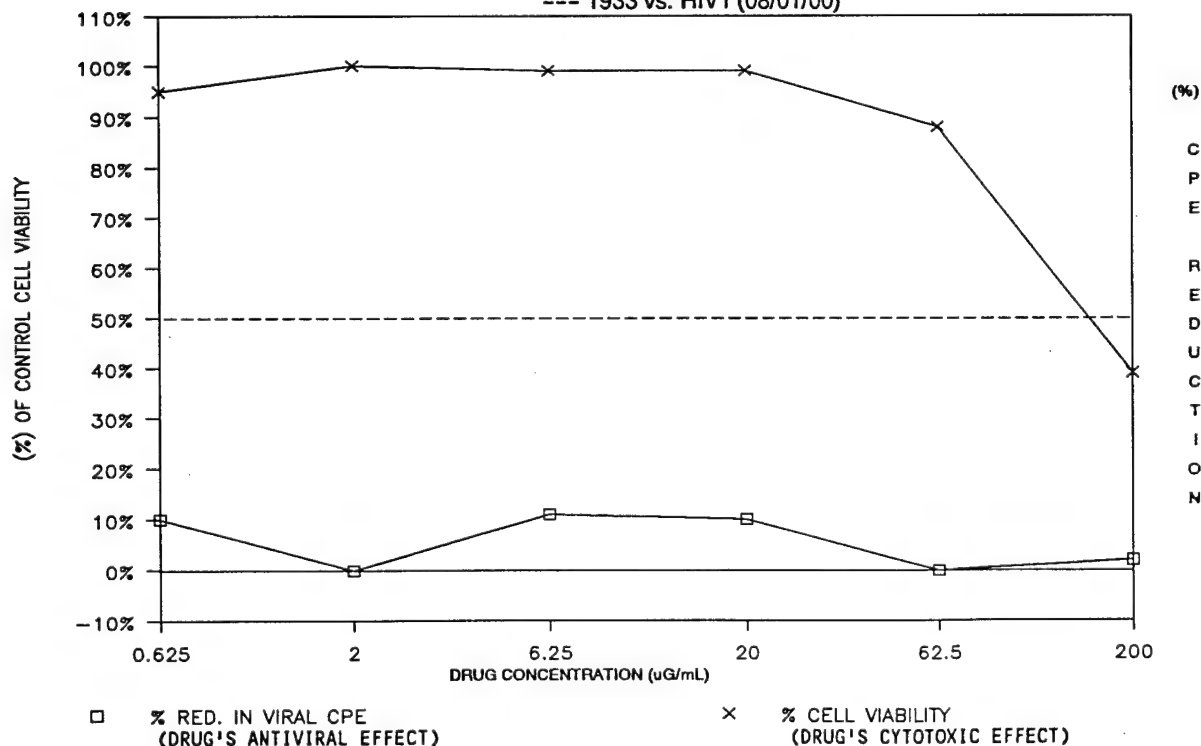


PLATE RG0
 DRUG 1936

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1936
 TAI: 1.38 Si: -----

	1	2	3	4	5	6	7	8	9	10	11	12	
A	reagent background						plastic background						
	0.405	0.358	0.394	0.400	0.390	0.432	0.042	0.047	0.046	0.046	0.052	0.061	
B		cc/vc					tox	drug 1936 experimental				cc/vc	tox
C		1.572					1.622	0.751	0.777	0.902	1.670	1.702	
D		1.554					1.774	0.782	0.748	0.960	1.744	1.731	
E		1.650					1.722	0.723	0.710	0.707	1.692	1.673	
F		0.820					1.728	0.615	0.661	0.706	0.771	1.793	
G		0.729					0.963	0.550	0.631	0.552	0.753	1.154	
		0.641					0.533	0.505	0.528	0.508	0.677	0.549	
H							colorimetric background						
							0.565	0.454	0.434	0.431	0.426	0.463	
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities													

tox=cell toxicity cc=cell control vc=virus control

BOLD = highest drug conc

values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN

HIV1 PASSAGE --
 CEMSS PASSAGE --
 -- OPERATOR KMW
 RF

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

REAGENT 0.397
 VIRUS CONTROL 0.335
 CELL CONTROL 1.251
 DIFFERENTIAL 0.915

DRUG 1936	25%	50%	95%
TC (uG/mL)	40.40	60.90	186.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1936		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	COLORIMETRIC CONTROL
low B	0.625	0.011	1%	1.199	96%	0.067
C	2	0.069	8%	1.327	100%	0.029
D	6.2	-0.053	0%	1.267	100%	0.034
E	20	-0.108	0%	1.327	100%	0.037
F	62.5	-0.212	0%	0.604	48%	0.058
high G	200	-0.386	0%	-0.023	0%	0.168

SUMMARY GRAPH

--- 1936 vs. HIV1 (08/01/00)

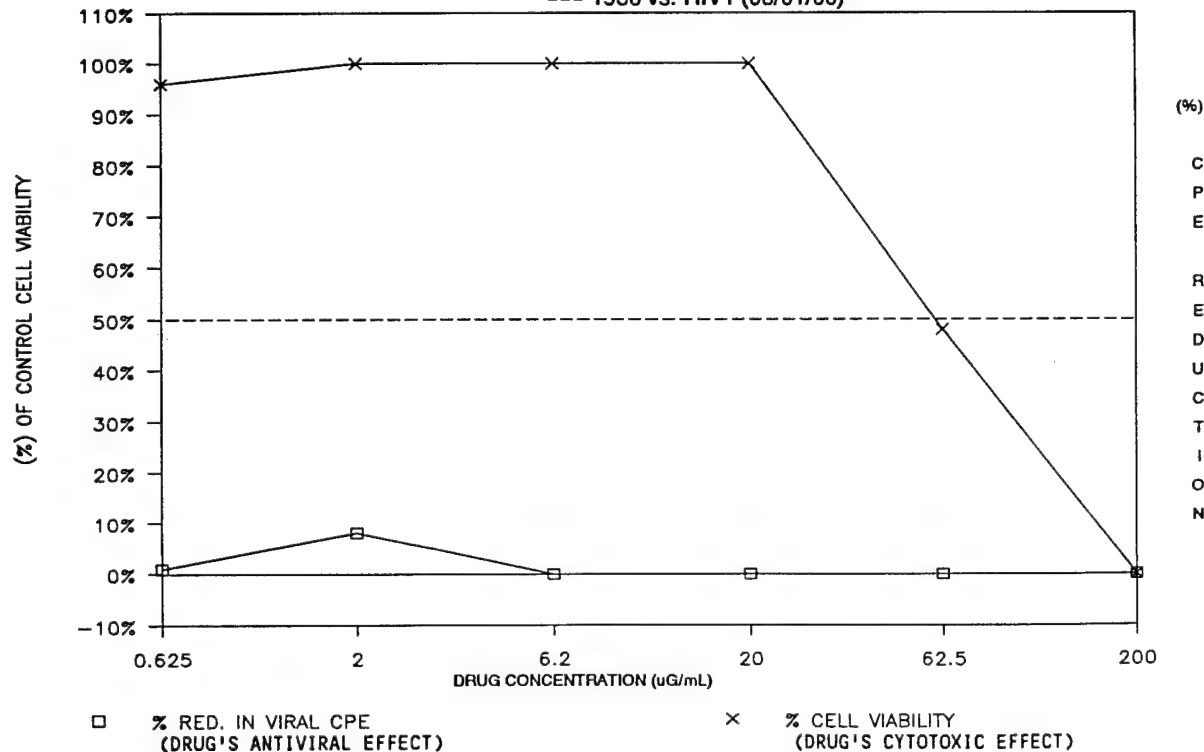


PLATE RG1
DRUG 1946

IN VITRO ANTIVIRAL RESULTS
XTT ASSAY

DRUG: --- 1946
TAI: >14.67 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12	
A	reagent background						plastic background						
	0.419	0.387	0.416	0.403	0.394	0.414	0.043	0.048	0.043	0.051	0.051	0.059	
B	tox	cc/vc	drug 1946 experimental				tox					cc/vc	
C	1.477	1.534	0.726	1.484	0.648	1.553						1.584	
D	1.596	1.614	0.717	0.876	0.676	1.594						1.632	
E	1.744	1.687	0.692	1.032	1.050	1.753						1.670	
F	1.707	0.715	1.215	0.684	0.708	1.707						0.687	
G	1.778	0.727	0.974	1.433	0.786	1.857						0.654	
H	0.458	0.664	0.449	0.457	0.432	0.428						0.709	
H	colorimetric background												
	0.505	0.452	0.433	0.437	0.409	0.418							
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities													

VIRUS
CELLS
SHIPMENT NUMBER
STRN

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

REAGENT 0.406
VIRUS CONTROL 0.287
CELL CONTROL 1.215
DIFFERENTIAL 0.928

DRUG 1946	25%	50%	95%
TC (uG/mL)	96.90	131.00	193.00
IC (uG/mL)	< 0.63	-----	-----
ANTIVIRAL INDEX (AI)	> 155.00	-----	-----

DRUG 1946		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.248	27%	1.098	90%	0.012
C	2	0.061	7%	1.187	98%	0.003
D	6.25	0.200	22%	1.311	100%	0.032
E	20	0.149	16%	1.275	100%	0.027
F	62.5	0.325	35%	1.365	100%	0.047
high G	200	-.347	0%	-.063	0%	0.100

SUMMARY GRAPH

--- 1946 vs. HIV1 (08/01/00)

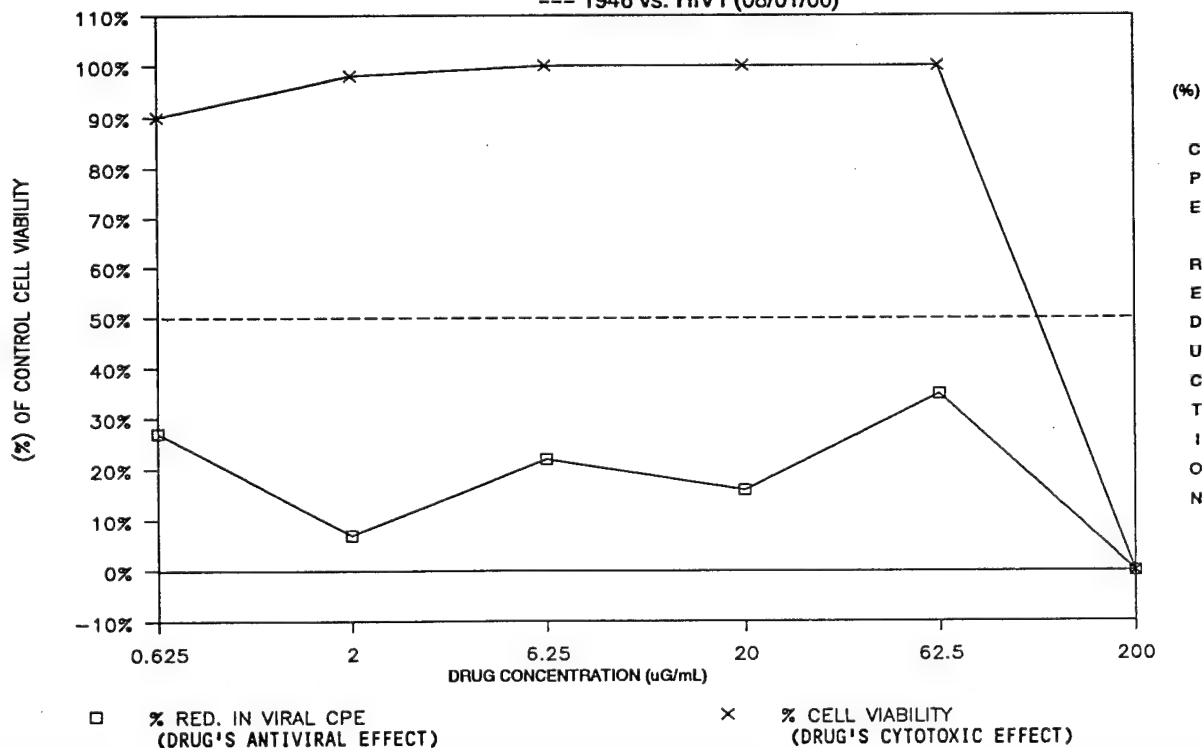


PLATE RG1
 DRUG 1948

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1948
 TAI: 8.65 SI: 1.88

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.419	0.387	0.416	0.403	0.394	0.414	0.043	0.048	0.043	0.051	0.051	0.059
B		cc/vc					tox	drug 1948 experimental		cc/vc	tox	
C		1.534					1.536	0.710	0.690	0.705	1.584	1.613
D		1.614					1.649	0.787	0.687	0.752	1.632	1.638
E		1.687					1.788	0.722	0.743	0.625	1.670	1.671
F		0.715					1.334	1.553	1.682	0.986	0.687	1.744
G		0.727					0.453	0.451	0.464	0.433	0.654	0.490
H		0.664					0.608	0.563	0.601	0.573	0.709	0.613
							colorimetric background					
							0.626	0.484	0.459	0.432	0.431	0.454

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1
 CEMSS
 --
 RF
 0.406
 0.287
 1.215
 0.928

PASSAGE --
 PASSAGE --
 OPERATOR KMW

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

DRUG 1948	25%	50%	95%
TC (uG/mL)	26.70	38.60	60.10
IC (uG/mL)	9.41	14.20	-----
ANTIVIRAL INDEX (AI)	2.83	2.72	-----

DRUG 1948		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-0.040	0%	1.120	92%	0.049
C	2	0.024	3%	1.213	100%	0.025
D	6.2	-0.022	0%	1.298	100%	0.026
E	20	0.660	71%	1.080	89%	0.054
F	62.5	-0.321	0%	-0.012	0%	0.078
high G	200	-0.335	0%	-0.016	0%	0.221

SUMMARY GRAPH

--- 1948 vs. HIV1 (08/01/00)

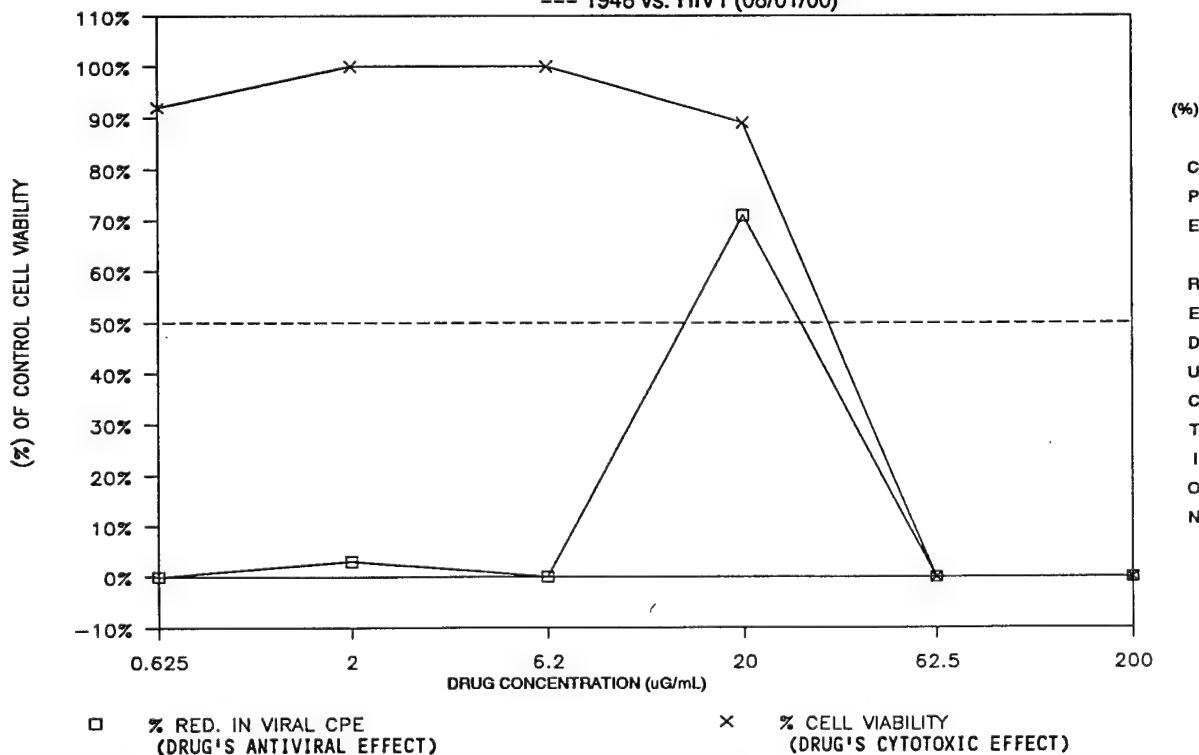


PLATE RG2
DRUG 1953

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1953
TAI: >1.62 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12	
	reagent background						plastic background						
A	0.420	0.409	0.390	0.410	0.415	0.418	0.047	0.051	0.051	0.051	0.054	0.060	
B	tox	cc/vc	drug 1953 experimental				tox					cc/vc	
C	1.621	1.647	1.482	0.655	0.690	1.700						1.584	
D	1.671	1.705	0.710	0.702	0.656	1.764						1.718	
E	1.616	1.732	0.986	0.725	0.775	1.666						1.703	
F	1.702	0.705	0.931	0.803	0.732	1.793						0.745	
G	0.865	0.667	0.840	0.849	0.844	0.878						0.726	
H	0.976	0.759	0.959	0.977	0.984	0.962						0.711	
	colorimetric background												
	1.020	0.903	0.624	0.506	0.459	0.436							
	tox=cell toxicity	cc=cell control	vc=virus control	BOLD = highest drug conc				values shown are optical densities					

VIRUS
CELLS
SHIPMENT NUMBER
STRN

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

REAGENT 0.410
VIRUS CONTROL 0.309
CELL CONTROL 1.271
DIFFERENTIAL 0.963

DRUG 1953	25%	50%	95%
TC (uG/mL)	26.30	38.40	60.10
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1953		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.198	21%	1.224	96%	0.026
C	2	-.079	0%	1.258	99%	0.049
D	6.25	0.014	1%	1.135	89%	0.096
E	20	-.111	0%	1.123	88%	0.214
F	62.5	-.368	0%	-.032	0%	0.493
high G	200	-.356	0%	-.051	0%	0.610

SUMMARY GRAPH

--- 1953 vs. HIV1 (08/01/00)

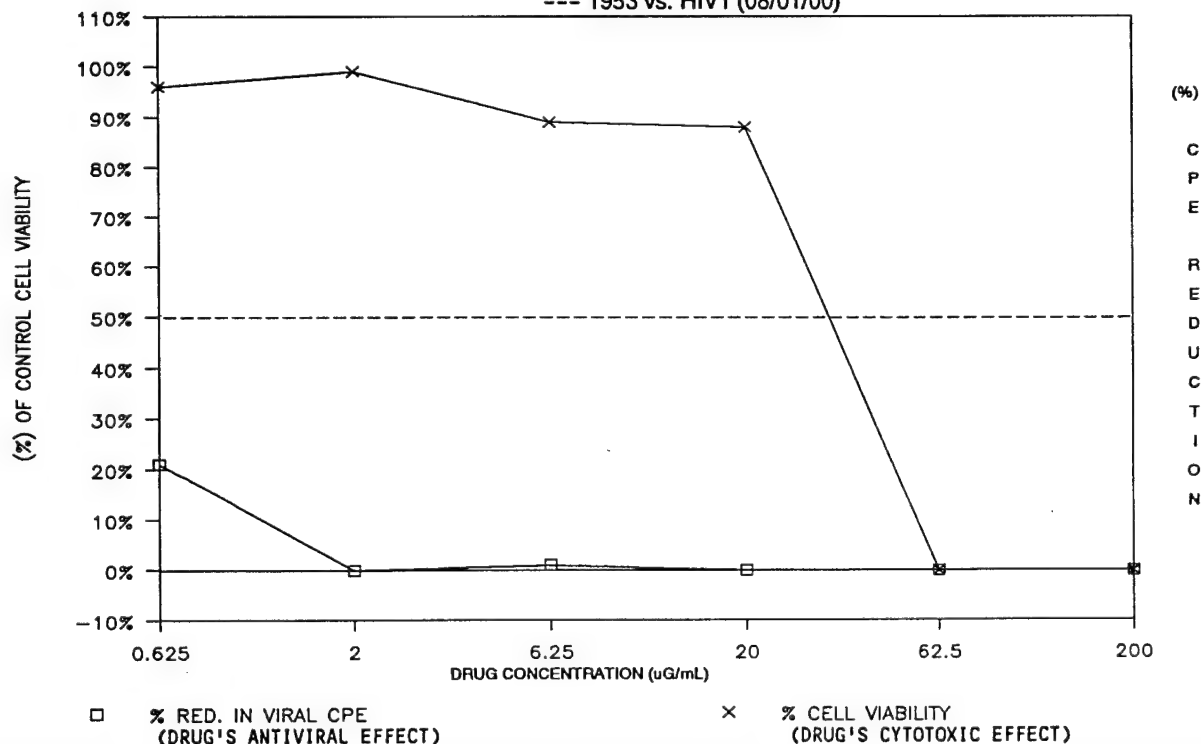


PLATE RG2
DRUG 1956

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1956
TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
	reagent background						plastic background					
A	0.420	0.409	0.390	0.410	0.415	0.418	0.047	0.051	0.051	0.051	0.054	0.060
B		cc/vc					tox	drug 1956 experimental				cc/vc
C		1.647					1.677	0.879	0.706	0.796	1.584	1.563
D		1.705					1.642	0.695	0.650	0.668	1.718	1.690
E		1.732					1.681	0.708	0.655	0.621	1.703	1.575
F		0.705					1.697	0.635	0.681	0.754	0.745	1.634
G		0.667					1.479	0.599	0.578	0.600	0.726	1.432
H		0.759					0.655	0.642	0.637	0.713	0.711	0.842
							colorimetric background					
							0.571	0.469	0.433	0.425	0.420	0.452

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
CELLS
SHIPMENT NUMBER
STRN

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

REAGENT 0.410
VIRUS CONTROL 0.309
CELL CONTROL 1.271
DIFFERENTIAL 0.963

DRUG 1956	25%	50%	95%
TC (uG/mL)	68.90	123.00	> 200.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1956		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.033	3%	1.168	92%	0.042
C	2	-0.058	0%	1.246	98%	0.010
D	6.2	-0.072	0%	1.203	95%	0.015
E	20	-0.052	0%	1.232	97%	0.023
F	62.5	-0.186	0%	0.986	78%	0.059
high G	200	-0.216	0%	0.177	14%	0.161

SUMMARY GRAPH

--- 1956 vs. HIV1 (08/01/00)

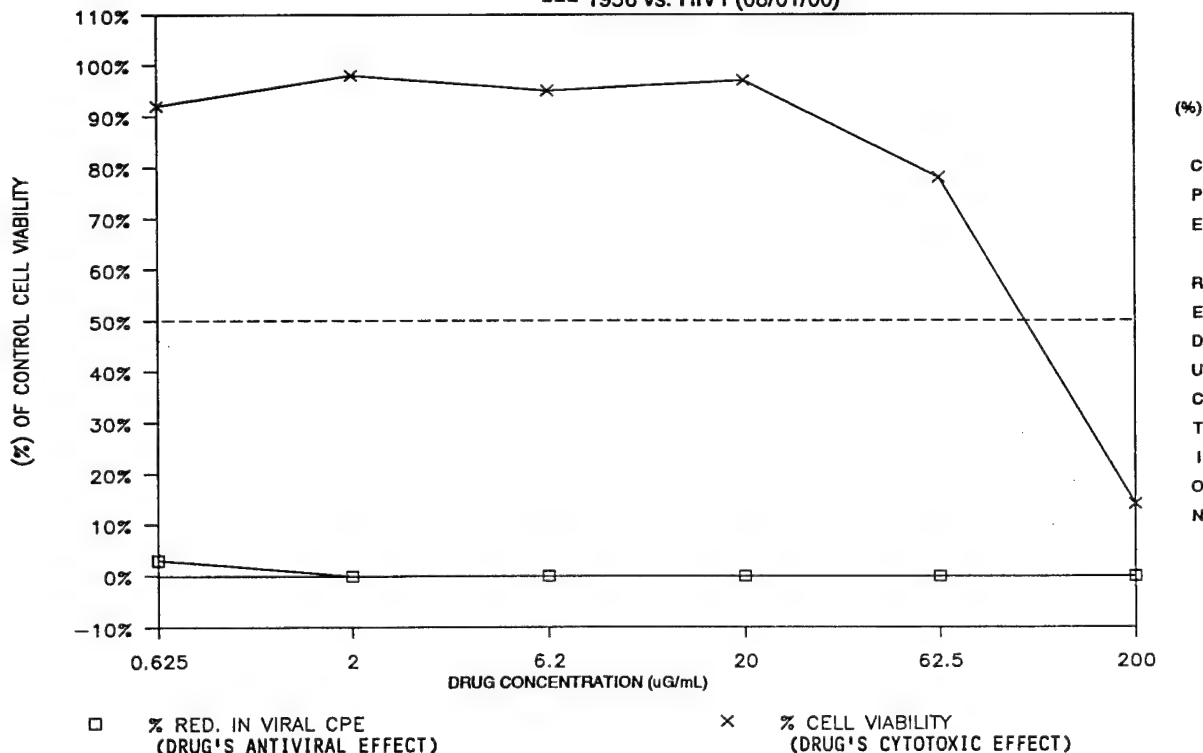


PLATE RG3
 DRUG 1957

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1957
 TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background					plastic background						
	0.434	0.422	0.407	0.415	0.430	0.447	0.056	0.059	0.056	0.059	0.064	0.065
B	tox	cc/vc	drug 1957 experimental				tox					cc/vc
C	1.489	1.656	0.573	0.560	0.611	1.539					1.634	
D	1.238	1.612	0.692	0.633	0.573	1.260					1.646	
E	0.452	1.647	0.380	0.400	0.404	0.451					1.670	
F	0.405	0.693	0.346	0.367	0.371	0.394					0.695	
G	0.456	0.729	0.409	0.424	0.416	0.427					0.828	
H	0.507	0.687	0.464	0.526	0.463	0.488					0.745	
colorimetric background												
H	0.543	0.464	0.426	0.431	0.407	0.445						

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1 PASSAGE --
 CEMSS PASSAGE --
 -- OPERATOR KMW
 RF
 0.426
 0.304
 1.218
 0.915

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

DRUG 1957	25%	50%	95%
TC (uG/mL)	1.57	3.21	6.06
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1957		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.167	0%	1.069	88%	0.019
C	2	-.078	0%	0.842	69%	-.019
D	6.25	-.340	0%	0.021	2%	0.005
E	20	-.368	0%	-.026	0%	0.000
F	62.5	-.351	0%	-.022	0%	0.038
high G	200	-.362	0%	-.045	0%	0.117

SUMMARY GRAPH

--- 1957 vs. HIV1 (08/01/00)

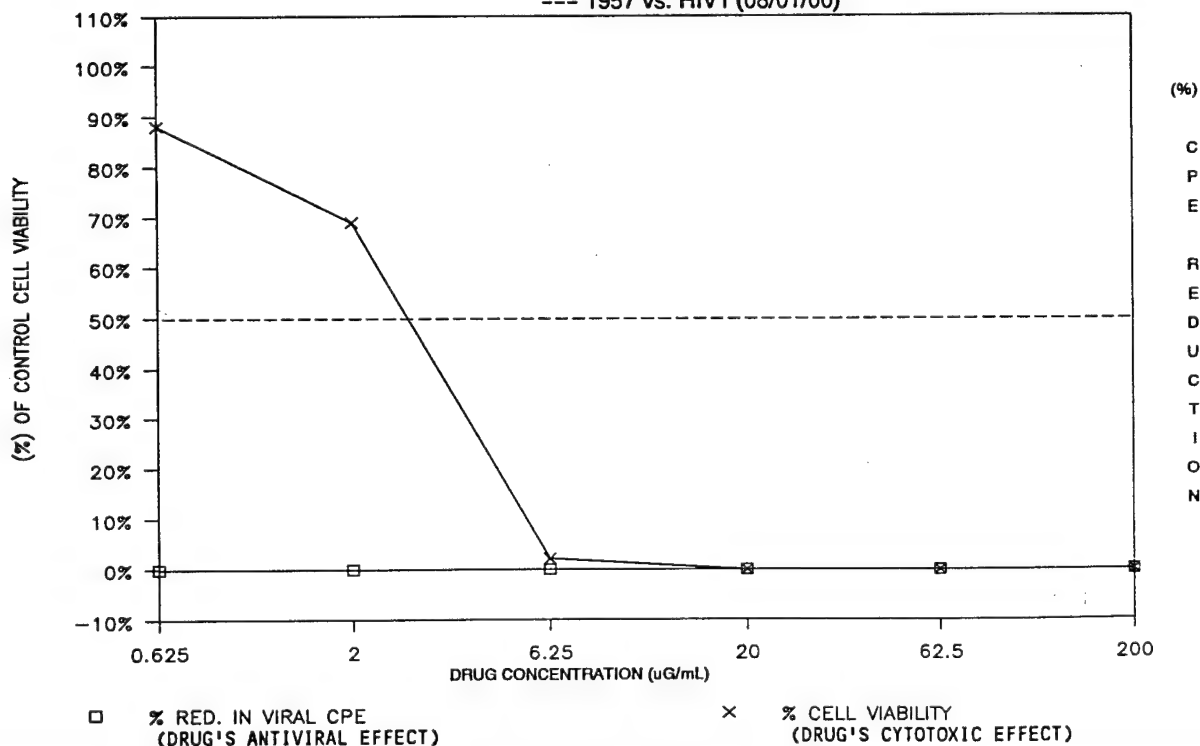


PLATE RG3
DRUG 1958

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1958
TAI: 0.14 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.434	0.422	0.407	0.415	0.430	0.447	0.056	0.059	0.056	0.059	0.064	0.065
B		cc/vc					tox	drug 1958 experimental			cc/vc	tox
C		1.656					1.623	0.740	0.697	0.729	1.634	1.594
D		1.612					1.709	0.736	0.710	0.721	1.646	1.693
E		1.647					1.555	0.733	0.769	0.691	1.670	1.673
F		0.693					1.521	0.641	0.649	0.665	0.695	1.516
G		0.729					1.638	0.646	0.647	0.645	0.828	1.568
	0.687	1.572					0.547	0.608	0.602	0.745	1.466	
H							colorimetric background					
							0.430	0.425	0.429	0.431	0.399	0.452
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities												

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1958	25%	50%	95%
TC (uG/mL)	> 200.00	> 200.00	> 200.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1958		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.034	0%	1.157	95%	0.026
C	2	0.020	2%	1.302	100%	-.027
D	6.2	-.004	0%	1.183	97%	0.005
E	20	-.081	0%	1.090	89%	0.003
F	62.5	-.082	0%	1.178	97%	-.001
high G	200	-.148	0%	1.089	89%	0.004

SUMMARY GRAPH

--- 1958 vs. HIV1 (08/01/00)

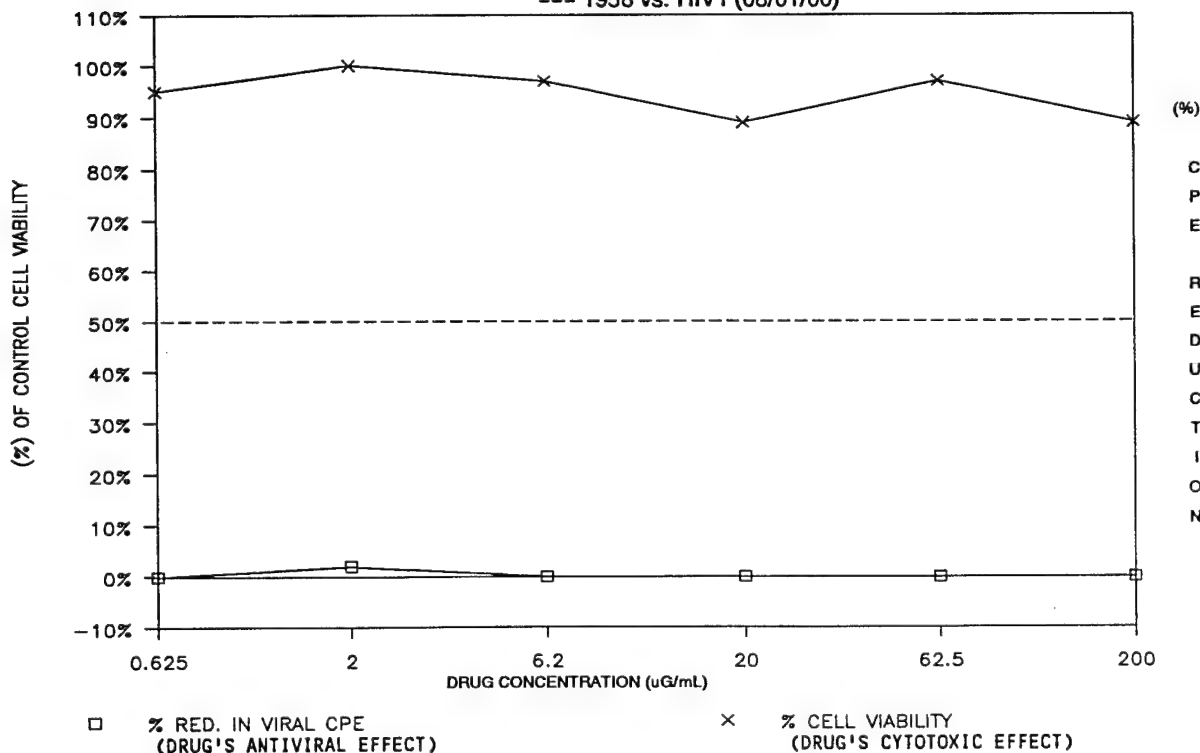


PLATE RG4
 DRUG 1959

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1959
 TAI: 6.20 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.467	0.448	0.465	0.457	0.443	0.451	0.062	0.067	0.066	0.070	0.071	0.075
B	tox	cc/vc	drug 1959 experimental				tox				cc/vc	
C	1.462	1.626	0.757	0.688	0.808	1.639					1.712	
D	1.403	1.565	0.690	0.692	0.692	1.335					1.640	
E	1.618	1.788	1.400	0.930	0.922	1.485					1.784	
F	1.716	0.783	0.622	1.116	1.346	1.869					0.821	
G	0.556	0.786	0.538	0.558	0.583	0.608					0.734	
H	0.398	0.650	0.390	0.391	0.398	0.406					1.041	
colorimetric background												
H	0.417	0.422	0.431	0.466	0.455	0.456						

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1 PASSAGE --
 CEMSS PASSAGE --
 -- OPERATOR KMW
 RF
 0.455
 0.347
 1.231
 0.883

PROJECT # --
 SPONSOR WALTER REED
 TEST DATE 08/01/00
 DATE READ 08/01/00

DRUG 1959	25%	50%	95%
TC (uG/mL)	1.91	44.40	147.00
IC (uG/mL)	5.01	-----	-----
ANTIVIRAL INDEX (AI)	0.38	-----	-----

DRUG 1959		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-0.052	0%	1.094	89%	0.001
C	2	-0.111	0%	0.914	74%	0.000
D	6.25	0.271	31%	1.085	88%	0.011
E	20	0.250	28%	1.361	100%	-0.024
F	62.5	-0.210	0%	0.160	13%	-0.033
high G	200	-0.372	0%	-0.015	0%	-0.038

SUMMARY GRAPH

--- 1959 vs. HIV1 (08/01/00)

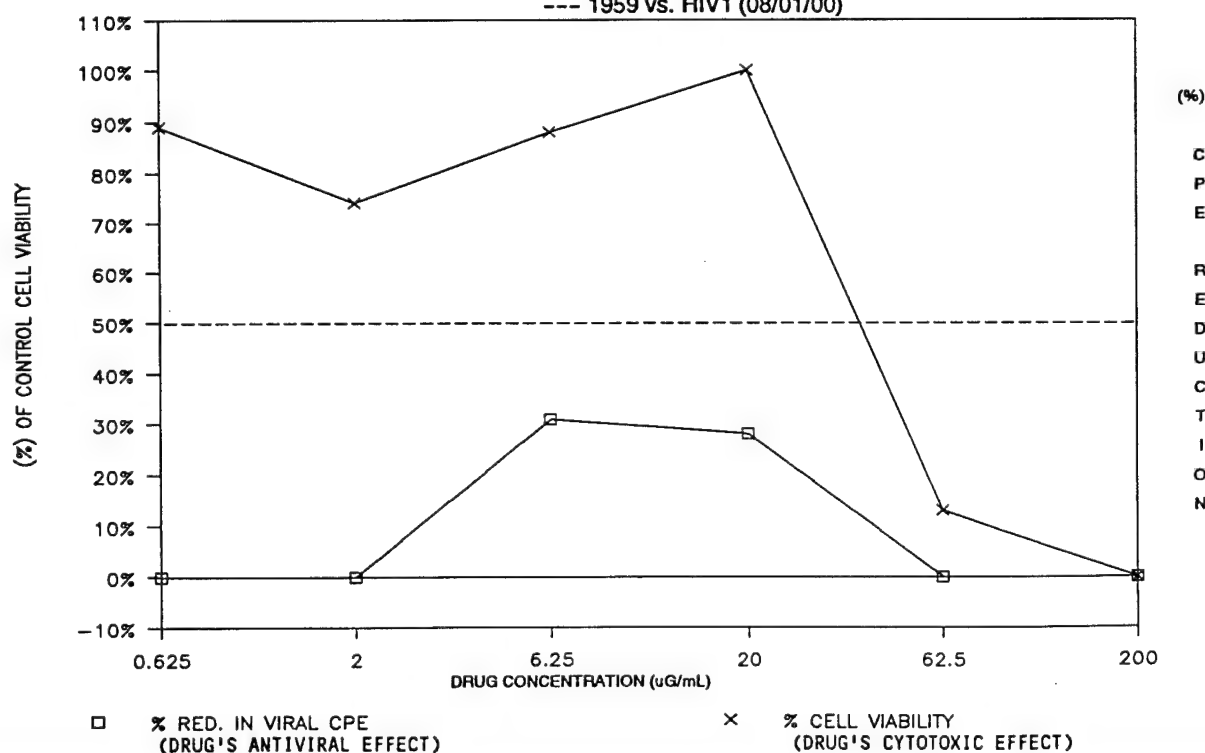


PLATE RG4
DRUG 1960

IN VITRO ANTIVIRAL RESULTS
XTT ASSAY

DRUG: --- 1960
TAI: 12.87 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.467	0.448	0.465	0.457	0.443	0.451	0.062	0.067	0.066	0.070	0.071	0.075
B		cc/vc					tox	drug 1960 experimental				cc/vc
C		1.626					1.767	0.707	0.840	0.774	1.712	tox
D		1.565					1.709	1.434	1.242	0.803	1.640	1.657
E		1.788					1.829	1.403	0.723	0.712	1.784	1.748
F		0.783					1.877	0.897	0.852	0.852	0.821	1.755
G		0.786					1.740	0.612	0.743	0.783	0.734	1.661
H		0.650					1.770	0.746	0.649	0.659	1.041	1.665
							colorimetric background					
							0.455	0.455	0.449	0.456	0.450	0.494

tox=cell toxicity cc=cell control vc=virus control

BOLD = highest drug conc

values shown are optical densities

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1960	25%	50%	95%
TC (uG/mL)	> 200.00	> 200.00	> 200.00
IC (uG/mL)	1.27	-----	-----
ANTIVIRAL INDEX (AI)	> 157.45	-----	-----

DRUG 1960		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.068	0%	1.213	99%	0.039
C	2	0.362	41%	1.233	100%	-.005
D	6.2	0.142	16%	1.332	100%	0.001
E	20	0.071	8%	1.367	100%	-.006
F	62.5	-.090	0%	1.245	100%	0.000
high G	200	-.118	0%	1.262	100%	0.000

SUMMARY GRAPH

--- 1960 vs. HIV1 (08/01/00)

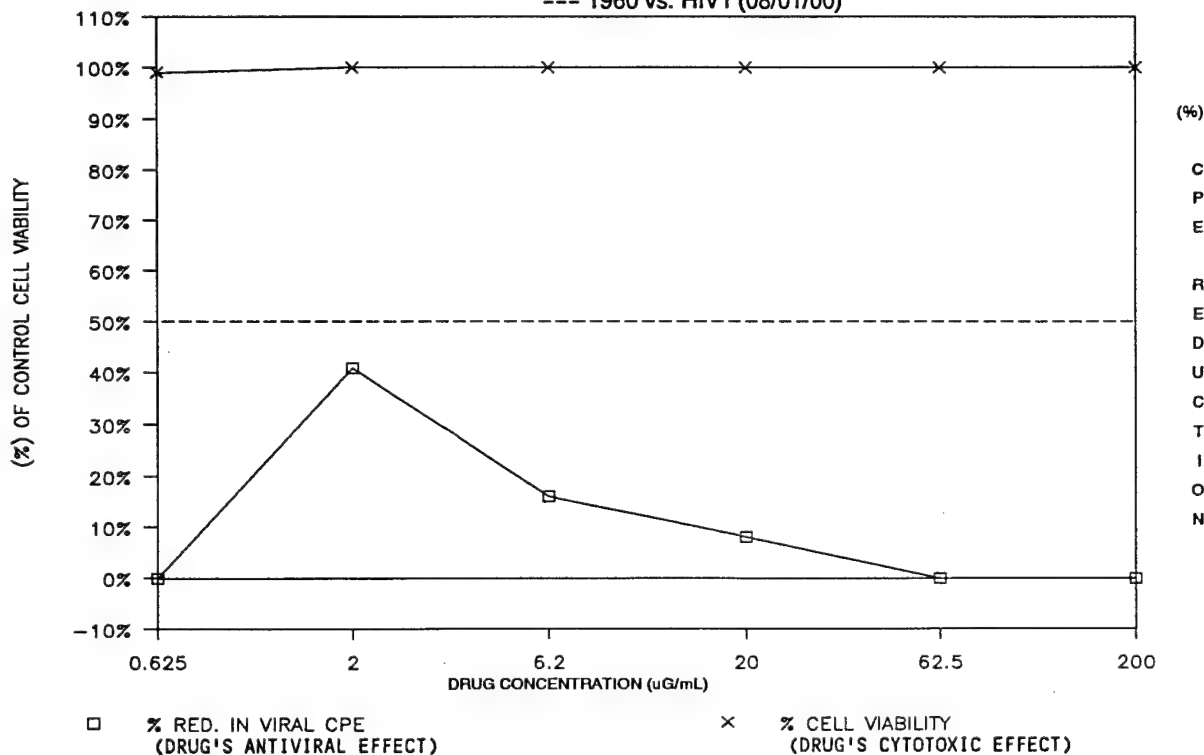


PLATE RG5
DRUG 1961

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1961
TAI: 7.01 SI: 1.86

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.434	0.421	0.427	0.440	0.413	0.445	0.059	0.060	0.059	0.055	0.058	0.061
B	tox	cc/vc	drug 1961 experimental				tox				cc/vc	
C	1.452	1.610	0.691	0.685	0.677	1.672					1.866	
D	1.458	1.669	0.735	0.672	1.474	1.588					1.815	
E	1.581	1.577	0.673	0.834	0.815	1.377					1.747	
F	1.817	0.731	1.732	1.041	1.158	1.689					0.659	
G	0.598	0.628	0.696	0.762	0.760	0.725					0.778	
H	0.551	0.814	0.536	0.515	0.516	0.523					0.859	
colorimetric background												
H	0.569	0.459	0.451	0.441	0.428	0.436						

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF
0.430
0.315
1.284
0.969

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1961	25%	50%	95%
TC (uG/mL)	32.60	45.30	157.00
IC (uG/mL)	10.30	17.60	-----
ANTIVIRAL INDEX (AI)	3.18	2.58	-----

DRUG 1961		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-0.067	0%	1.126	88%	0.006
C	2	0.217	22%	1.095	85%	-0.002
D	6.25	0.018	2%	1.038	81%	0.011
E	20	0.544	56%	1.302	100%	0.021
F	62.5	-0.035	0%	0.202	16%	0.029
high G	200	-0.362	0%	-0.032	0%	0.139

SUMMARY GRAPH

--- 1961 vs. HIV1 (08/01/00)

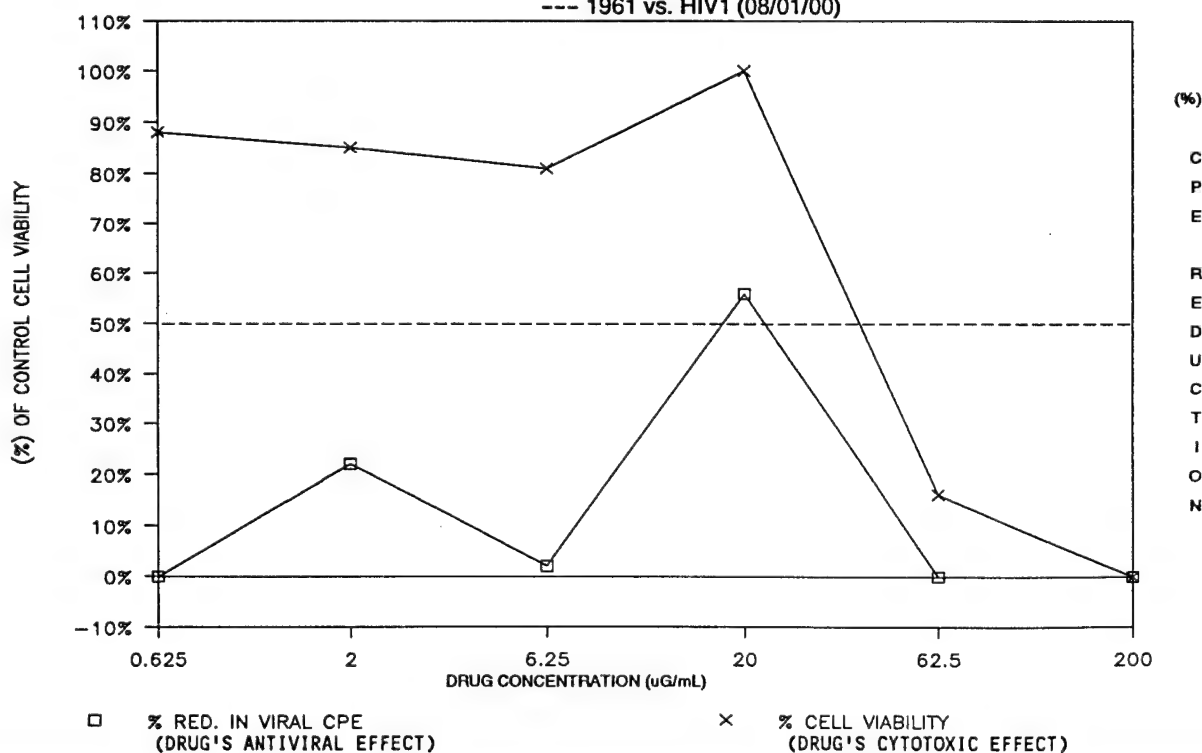


PLATE RG5
DRUG 1962

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1962
TAI: 0.26 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	0.434	0.421	reagent background			0.413	0.445	0.059	0.060	plastic background		
B		cc/vc					tox	drug 1962 experimental			cc/vc	tox
C		1.610					1.755	1.006	0.754	0.656	1.866	1.672
D		1.669					1.686	0.826	0.738	0.731	1.815	1.814
E		1.577					1.843	0.879	0.697	0.679	1.747	1.746
F		0.731					1.820	0.664	0.715	0.813	0.659	1.745
G		0.628					0.438	0.486	0.460	0.509	0.778	0.526
H		0.814					0.507	0.474	0.464	0.464	0.859	0.495
							colorimetric background					
							0.491	0.473	0.457	0.457	0.430	0.490

tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities

VIRUS CELLS HIV1 PASSAGE -- PROJECT # --
CEMSS PASSAGE -- SPONSOR WALTER REED
SHIPMENT NUMBER -- OPERATOR KMW TEST DATE 08/01/00
STRN RF DATE READ 08/01/00

REAGENT	0.430	DRUG 1962	25%	50%	95%
VIRUS CONTROL	0.315	TC (uG/mL)	30.70	41.50	60.80
CELL CONTROL	1.284	IC (uG/mL)	-----	-----	-----
DIFFERENTIAL	0.969	ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1962		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	0.001	0%	1.224	95%	0.060
C	2	0.020	2%	1.320	100%	0.000
D	6.2	-0.020	0%	1.338	100%	0.027
E	20	-0.041	0%	1.326	100%	0.027
F	62.5	-0.303	0%	0.009	1%	0.043
high G	200	-0.339	0%	0.010	1%	0.061

SUMMARY GRAPH

--- 1962 vs. HIV1 (08/01/00)

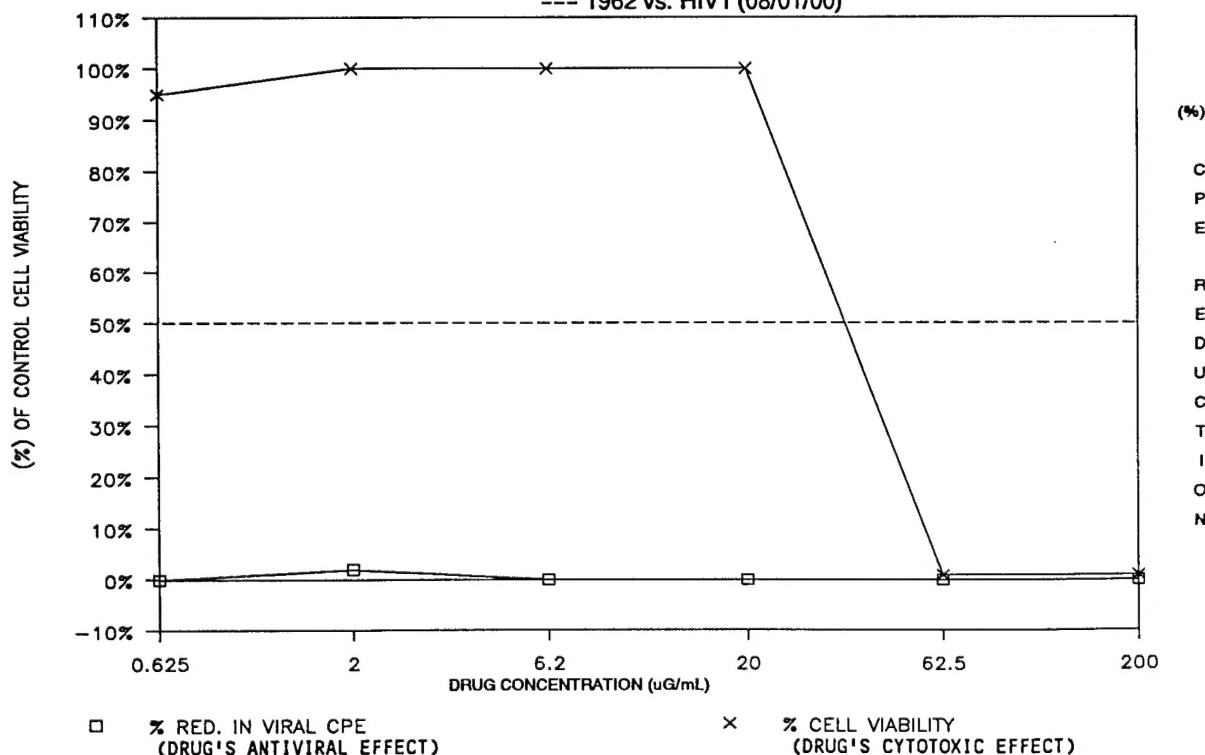


PLATE RG6
DRUG 1963

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1963
TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.431	0.421	0.397	0.398	0.396	0.405	0.048	0.055	0.052	0.055	0.058	0.062
B	tox	cc/vc	drug 1963 experimental				tox				cc/vc	
C	1.578	1.637	0.625	0.664	0.945	1.704					1.462	
D	1.360	1.487	0.561	0.583	0.548	1.529					1.663	
E	1.233	1.589	0.914	1.025	0.669	1.321					1.681	
F	1.128	0.645	1.256	1.149	1.138	1.186					0.742	
G	0.995	0.942	1.036	1.089	1.103	1.031					0.879	
H	1.128	0.784	1.121	1.114	1.108	1.127					0.742	
colorimetric background												
H	1.151	0.783	0.555	0.453	0.428	0.435						
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities												

VIRUS
CELLS
SHIPMENT NUMBER
STRN
REAGENT
VIRUS CONTROL
CELL CONTROL
DIFFERENTIAL

HIV1 PASSAGE --
CEMSS PASSAGE --
-- OPERATOR KMW
RF
0.408
0.381
1.179
0.798

PROJECT # --
SPONSOR WALTER REED
TEST DATE 08/01/00
DATE READ 08/01/00

DRUG 1963	25%	50%	95%
TC (uG/mL)	4.92	21.40	166.00
IC (uG/mL)	15.40	-----	-----
ANTIVIRAL INDEX (AI)	0.32	-----	-----

DRUG 1963		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.071	0%	1.206	100%	0.027
C	2	-.245	0%	1.017	86%	0.020
D	6.25	0.035	4%	0.824	70%	0.045
E	20	0.245	31%	0.602	51%	0.147
F	62.5	-.088	0%	0.230	20%	0.375
high G	200	-.418	0%	-.024	0%	0.743

SUMMARY GRAPH

--- 1963 vs. HIV1 (08/01/00)

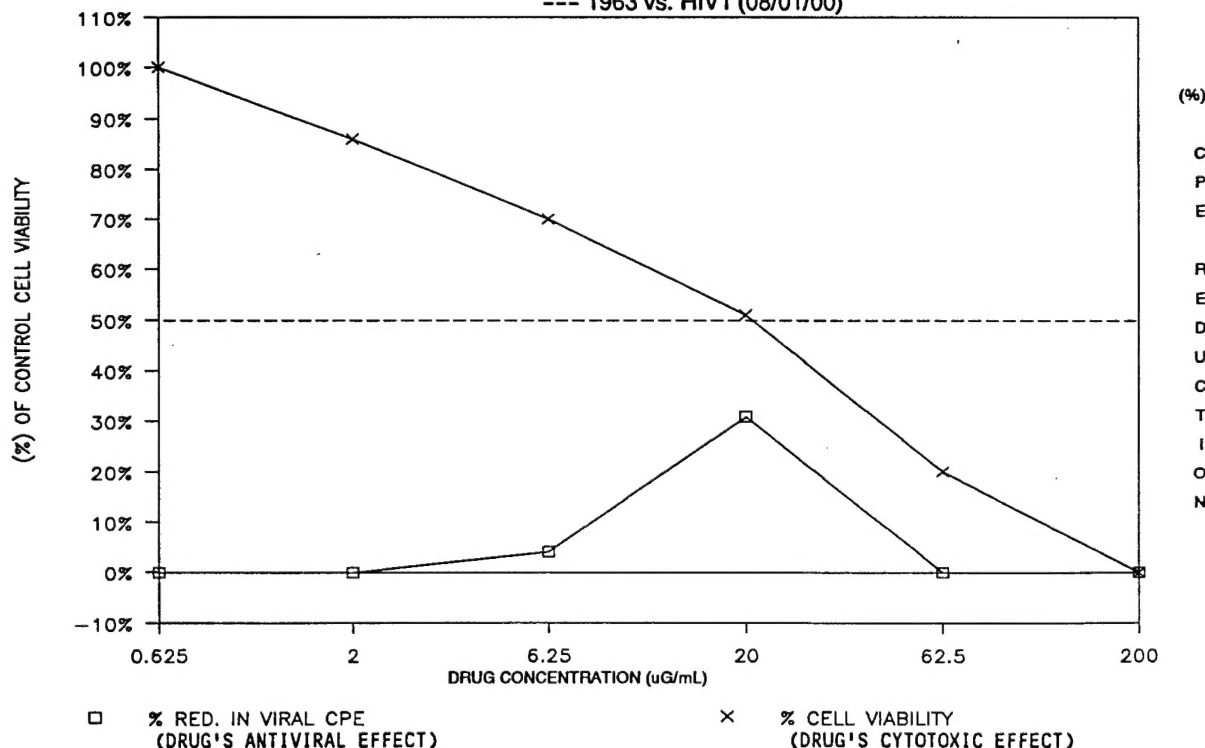


PLATE RG6
 DRUG 1964

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1964
 TAI: 0.000000 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12	
A	reagent background						plastic background						
	0.431	0.421	0.397	0.398	0.396	0.405	0.048	0.055	0.052	0.055	0.058	0.062	
B		cc/vc					tox	drug 1964 experimental				cc/vc	tox
C		1.637					1.748	0.786	0.756	0.749	1.462	1.814	
D		1.487					1.767	0.696	0.994	0.703	1.663	1.752	
E		1.589					0.631	0.424	0.415	0.417	1.681	0.613	
F		0.645					0.418	0.408	0.406	0.410	0.742	0.440	
G		0.942					0.427	0.428	0.431	0.432	0.879	0.468	
		0.784					0.457	0.427	0.433	0.427	0.742	0.437	
H							colorimetric background						
							0.455	0.434	0.448	0.439	0.418	0.457	
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities													

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN
 REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

HIV1
 CEMSS
 PASSAGE --
 PASSAGE --
 OPERATOR KMW
 RF
 0.408
 0.381
 1.179
 0.798

PROJECT #
 SPONSOR
 TEST DATE
 DATE READ

--
 WALTER REED
 08/01/00
 08/01/00

DRUG 1964	25%	50%	95%
TC (uG/mL)	3.26	4.53	15.70
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1964		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC CONTROL
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN CPE	MEAN O.D.	% CELL VIABILITY	
low B	0.625	-.074	0%	1.324	100%	0.049
C	2	-.001	0%	1.342	100%	0.010
D	6.2	-.401	0%	0.183	16%	0.031
E	20	-.421	0%	-.019	0%	0.040
F	62.5	-.385	0%	0.014	1%	0.026
high G	200	-.407	0%	-.008	0%	0.047

SUMMARY GRAPH

--- 1964 vs. HIV1 (08/01/00)

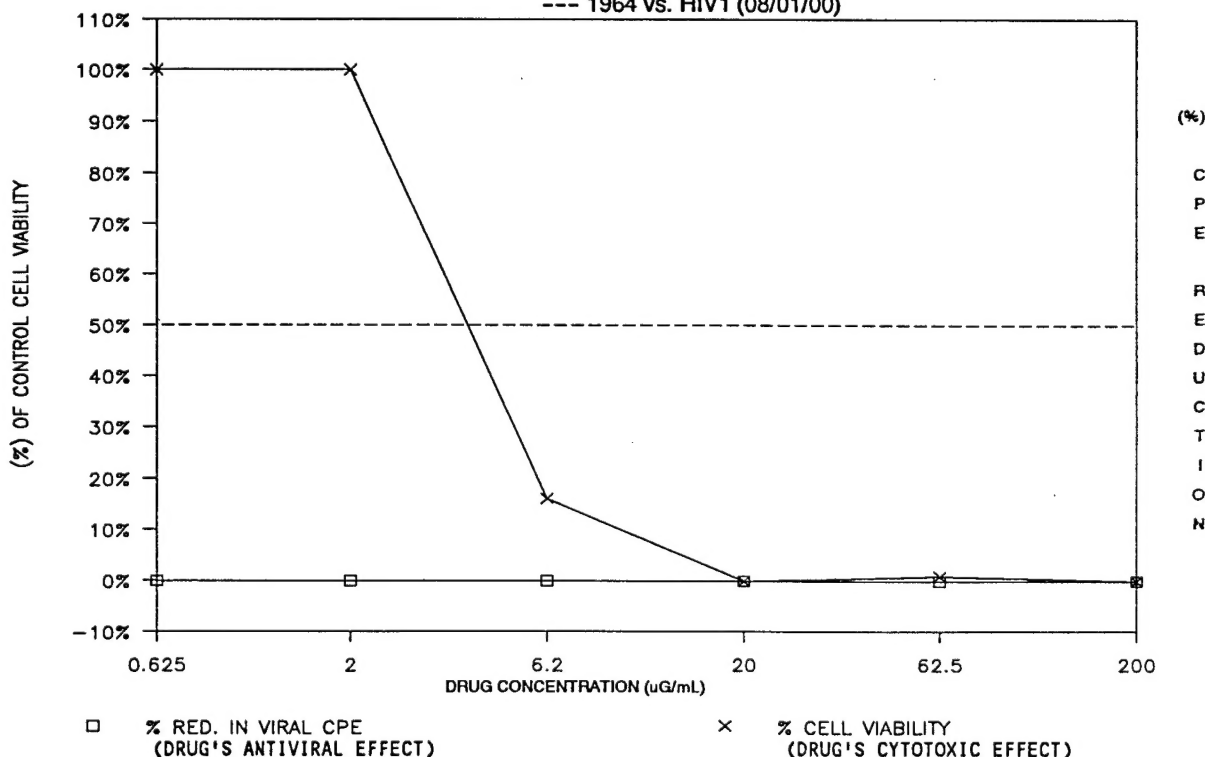


PLATE RG7
 DRUG 1965

IN VITRO ANTIVIRAL RESULTS XTT ASSAY

DRUG: --- 1965
 TAI: >1.70 SI: -----

	1	2	3	4	5	6	7	8	9	10	11	12
A	reagent background						plastic background					
	0.421	0.394	0.398	0.400	0.405	0.411	0.056	0.056	0.057	0.056	0.059	0.063
B	tox	cc/vc	drug 1965 experimental				tox				cc/vc	
C	1.470	1.554	0.801	0.729	0.729	1.600					1.524	
D	1.578	1.567	0.698	0.734	0.638	1.654					1.631	
E	1.535	1.508	0.674	0.693	0.824	1.587					1.574	
F	1.538	0.585	0.692	0.630	0.687	1.668					0.617	
G	1.475	0.612	0.651	0.641	0.637	1.633					0.646	
H	1.054	0.665	0.782	0.924	0.797	1.341					0.676	
colorimetric background												
H	0.551	0.460	0.452	0.445	0.425	0.446						
tox=cell toxicity cc=cell control vc=virus control BOLD = highest drug conc values shown are optical densities												

VIRUS
 CELLS
 SHIPMENT NUMBER
 STRN

HIV1
 CEMSS
 PASSAGE --
 PASSAGE --
 OPERATOR KMW

PROJECT #
 SPONSOR
 TEST DATE
 DATE READ

REAGENT
 VIRUS CONTROL
 CELL CONTROL
 DIFFERENTIAL

DRUG 1965	25%	50%	95%
TC (uG/mL)	133.00	> 200.00	> 200.00
IC (uG/mL)	-----	-----	-----
ANTIVIRAL INDEX (AI)	-----	-----	-----

DRUG 1965		ANTIVIRAL TEST VALUES		CYTOTOXICITY TEST VALUES		COLORIMETRIC
ROW ON PLATE	CONC. (uG/mL)	MEAN O.D.	% RED. IN VIRAL CPE	MEAN O.D.	% CELL VIABILITY	CONTROL
low B	0.625	0.079	9%	1.089	94%	0.041
C	2	0.037	4%	1.191	100%	0.020
D	6.25	0.057	6%	1.116	97%	0.040
E	20	-.011	0%	1.151	100%	0.047
F	62.5	-.045	0%	1.094	95%	0.055
high G	200	0.055	6%	0.647	56%	0.146

SUMMARY GRAPH

--- 1965 vs. HIV1 (08/01/00)

